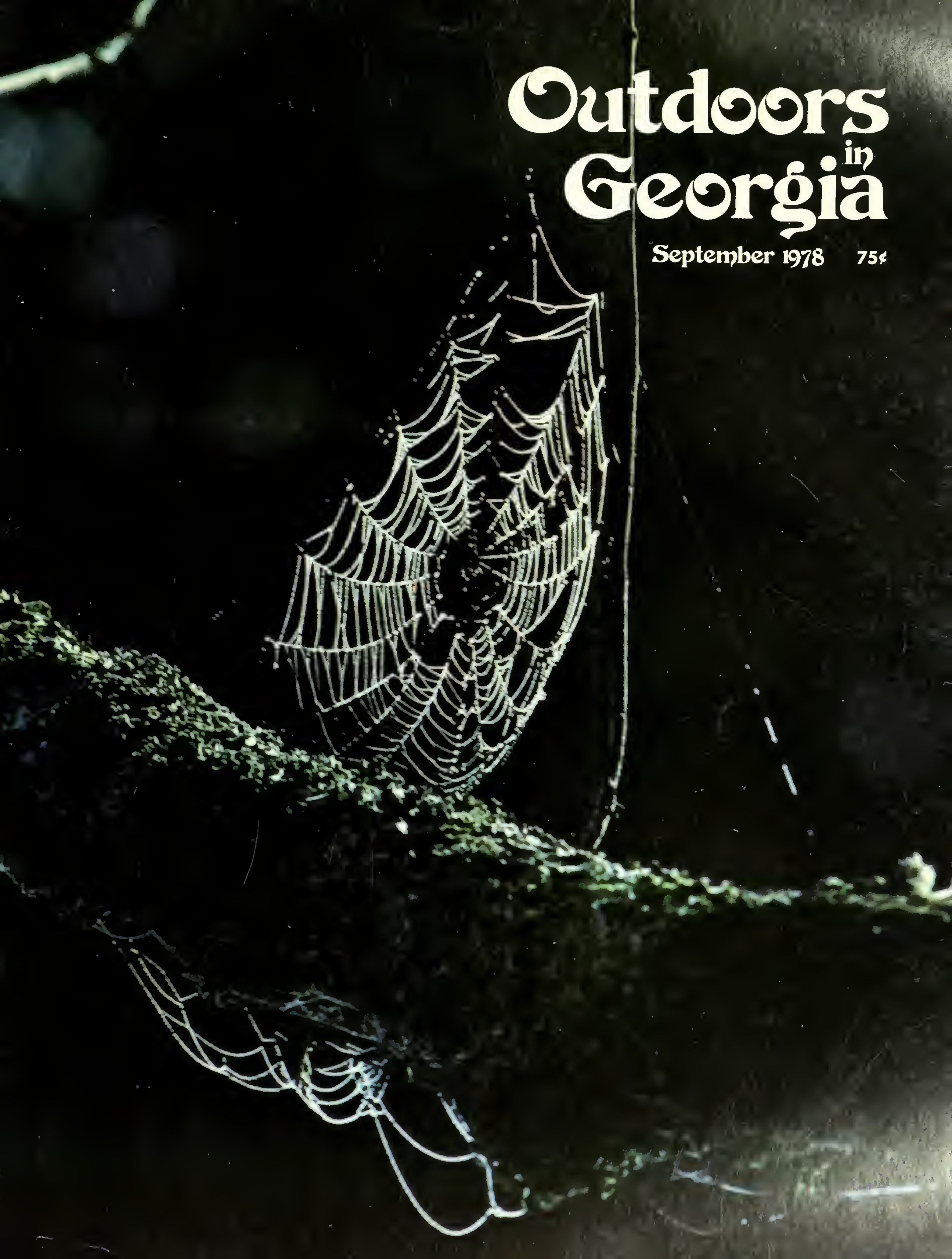

Outdoors in Georgia

September 1978 75¢

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Outdoors in Georgia

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FRONT COVER: A silken wander. Photo by Mark Williams.

BACK COVER: Deep in the Okefenokee, little has changed since the travels of William Bartram. See "Traveling with Bartram," page 3. Photo by Jimmy Valentine.

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Outdoor Commentary

Wildfire Season

As the hot haze of Indian summer begins to be buffeted about by the winds of autumn, a new threat to our natural resources materializes—wildfire. Each fall (and spring) many acres of Georgia's forests are ravaged by fire caused by carelessness and malice.

These two periods are our peak fire seasons because climatic conditions create ideal burning conditions. Wind is the major culprit. Blowing dry and hot for only a few days, the wind can dry out forest and fields to a tinder-like dryness. Along comes a careless cigarette butt or the match of an arsonist, and that same wind will carry a wildfire through a forest at incredible speed.

This fall may be a busy one for forest fire fighters and local fire departments. Last spring was one of the worst in many years, and while Georgia was spared a major fire over a large area, many small fires accumulated a great deal of damage.

These fires start in many ways. Careless travelers flip burning smokes out car windows, careless campers let campfires get loose, careless homeowners burn trash at high risk periods; all are good ways to burn a forest. Then there are the arsonists, people who for some reason or other choose to vent their rage at whatever troubles them by burning trees.

There are many preventatives to wildfire. Controlled burning, under favorable conditions, is one of the best methods of reducing wildfire potential in woodlands. Homes can be protected by firebreaks. And today our advanced fire control network helps control those fires which do get started.

The best control, however, is still in individual hands—millions of them that will be out enjoying nature this autumn. Use your car ashtray, not the window; build small campfires and pay attention to them; and discard trash, don't burn it. It's up to you to prevent fires this fall.

Aaron Pass

TRAVELING with BARTRAM

By Lucy Justus

"I stretched myself along before my fire; having the river, my little harbor, and the stern of my vessel in view; and now through fatigue and weariness I fell asleep. But this happy temporary release from cares and troubles I enjoyed but a few moments, when I was awakened and greatly surprised by the terrifying screams of owls in the deep swamps around me; and what increased my extreme misery was the difficulty in getting quite awake, and yet hearing at the same time such screeching and shouting which increased and spread every way for miles around, in dreadful peals vibrating through the dark extensive forests, meadows and lakes.

"I could not after this surprise recover my former peaceable state and tranquility of mind and repose, during the long night; and I believe it was happy for me that I awakened for at that moment the crocodile was dashing my canoe against the roots of the tree, endeavoring to get into it for the fish (I had left there).

"Another time in the night I believe I narrowly escaped being dragged into the river by him; for when again through excessive fatigue I had fallen asleep, but was again awakened by the screaming owl, I found the monster on the top of the bank, his head towards me not above two yards distant; when starting up and seizing my fusee, well-loaded, which I always kept under my head in the night time, he drew back and plunged into the water.

"After this I roused up my fire, and kept a light during the remaining part of the night, being determined not to be caught napping again: indeed the mosquitoes alone would have been abundantly sufficient to keep any creature awake that possessed his perfect senses; but I was overcome and stupefied with incessant watching and labor.

"As soon as I discovered the first signs of daylight, I arose, got all my effects and implements on board, and set sail, proceeding upward, hoping to give the mosquitoes the slip, who were now, by the cool morning dews and breezes, driven to their shelter and hiding places. I was mistaken, however, in these conjectures, for great numbers of them, which had concealed themselves in my boat, as soon as the sun arose, began to revive, and sting me on my legs, which obliged me to land in order to get bushes to beat them out of their quarters."

Reprinted by permission from *Travels* by William Bartram, copyright 1977, The Beehive Press, Savannah

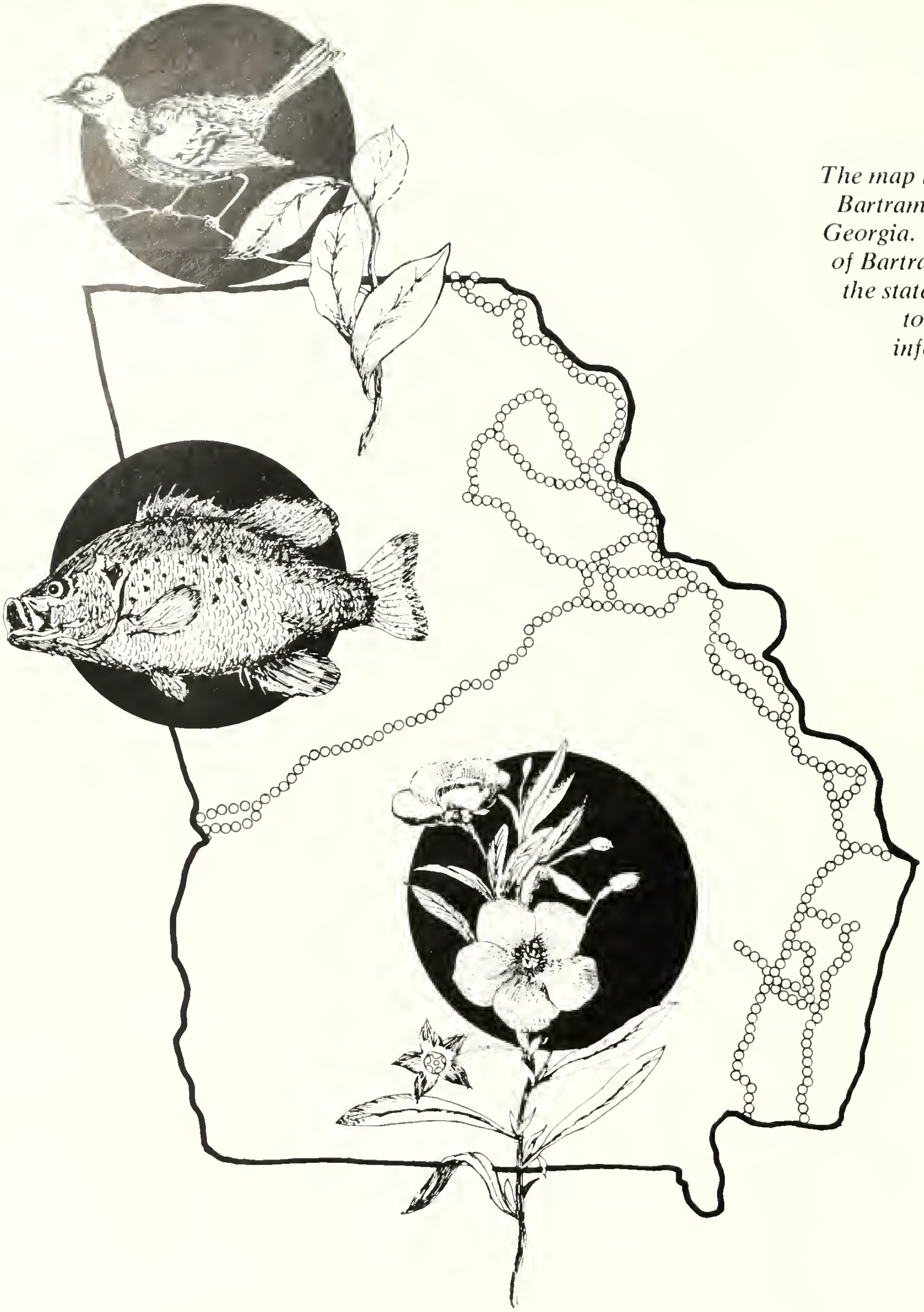
Such were the hazards of travel in the South in the early 1770s.

The author of the account was William Bartram, author, naturalist and the son of Philadelphia botanist John Bartram. The two had traveled together in the Southeast in the 1760s as John collected specimens of unusual plants. Together they discovered the famous Franklinia Alatamaha, or "Lost Gordonia," near Ft. Barrington, Georgia. In 1773, William returned alone to the South to collect plants and seeds for Dr. John Fothergill, a London physician and owner of the largest botanical garden in England. He was also to collect herbarium specimens and to draw birds, reptiles, insects and plants for Dr. Fothergill.

In carrying out the commission, Bartram traveled an estimated 2,552 miles in eight southeastern states, including 920 miles in Georgia. During the years 1773-1776, Bartram covered the length and breadth of the state and made additional excursions within its boundaries.

Hikers today can follow much of William Bartram's path through the state. The Bartram Trail Society, organized in 1970, has mapped the entire route and marked between 150 and 175 miles of it. Since many sections are along roads, driving tours are also possible.

Obviously, much of the land along Bartram's path has now been developed. In such cases, wherever possible, the trail has been relocated close to the



The map traces the travels of William Bartram through eighteenth century Georgia. Between 150 and 175 miles of Bartram's 920-mile route through the state have been marked; driving tours are possible. For further information, write the Bartram Trail Society, 6688 Marsh Avenue, Lithia Springs, Georgia 30057.

original trail but through areas that give the hiker an idea of what the country was like when Bartram traveled it.

William Bartram was not the professional botanist his father was and his three-year tour was, in many ways, a disappointment to Dr. Fothergill, his sponsor. But the journal Bartram kept of his travels is an excellent record of Georgia's natural resources during the state's early years. Bartram saw the state when "bears, tygers, wolves and wildcats were numerous," when the bald eagle and the great gray eagle were plentiful and when Georgia's great forests were virtually untouched.

"Tyger," he explained was the southern name for an animal Yankees called a panther. The animal, he said, was yellowish brown, bigger than any dog and very "mischievous."

Bartram apparently did not know the difference between crocodiles and alligators. "Alligator," he observed, was the country name for crocodile.

William Bartram was impressed with Georgia and its citizens. At a plantation on the coast, he met John McIntosh, son of the plantation owner, and enlisted him as a traveling companion. The two traveled some 2,000 miles together.

He was enthusiastic enough about a mountain in northeast Georgia to write: "This exalted peak I named Mount Magnolia, from a new and beautiful species of that celebrated family of flowering trees, which here, at the cascades of Falling Creek, grows in a high degree of perfection." The identity of that mountain has now been lost in time, but authorities believe it was probably Rabun Bald.

While the Bartram Trail today passes through numerous places of beauty and historical interest, it was, of course, infinitely more exciting to travel in the 1700s when the country was an undeveloped wilderness inhabited primarily by Indians and wild animals—both of uncertain temperament. And the scenery was fabulous.

Bartram doubted if people would believe him if he accurately described some of the things he saw. One such case involved an area along the North Fork of the Little River where he found "the most magnificent forest I had ever seen. Many of the black oaks measured eight, nine, ten and eleven feet in diameter five feet above the ground. The tulip tree, liquidambar and beech were equally stately."

He figured, accurately, that his description of Shell Bluff on the Savannah River would furnish material for considerable discussion by naturalists. He wrote, "The high road crosses a ridge of high swelling hills of uncommon elevation and perhaps seventy feet higher than the surface of the river; these hills are from three feet below the common vegetative surface, to the depth of twenty or thirty feet, composed entirely of fossil oyster shells, internally of the color and consistency of clear white marble; they are of an incredible magnitude, generally fifteen or twenty inches in length, from six to eight wide and two to four in thickness, and their hollows sufficient to receive an ordinary man's foot."

Another place which intrigued Bartram was the Great Buffalo Lick, near what is now Philomath. Accompanying a party of surveyors, he arrived there on a summer evening in 1773. At the foot of the southeastern promontory of the Great Ridge dividing the Savannah and Altamaha, he found a large cane swamp and meadows which formed a huge plain. The Great Buffalo Lick, which covered three to four acres, attracted cattle, horses and deer which created "great caves" by licking the white clay. Bartram pointed out that inhabitants of the area thought the clay was impregnated with saline vapours arising from fossil salts deep in the earth. When he tasted it, however, he discovered nothing salty about it but an insipid sweetness.

Both Oglethorpe and Greene counties claim great buffalo licks.

In the 1940s, Dr. Francis Harper traveled extensively in the Southeast relocating for the Philadelphia Philosophical Society the route Bartram described in his journal. During that time, he spent several days at the home of C. W. Wright in Philomath. Dr. Harper concluded that Bartram's buffalo lick was on land owned by Mr. Wright.

As a child, Dorothy Wright Normany played in the "cow lick" on her father's farm. "Bartram said he didn't taste anything salty in the soil," Mrs. Normany said. "He wondered why the animals licked it. My dad was puzzled by the same thing. Why did his cows constantly lick the side of the clay pit when he kept an abundant supply of salt in his pastures? Francis Harper used the salt question in identifying Wright's cow lick as Bartram's buffalo lick. He, my father, and a University of Georgia chemist concluded that since the licks were geographically the same, the physical and chemical properties of the clay the same, and verbal and written descriptions the same, the areas must be one and the same."

Mrs. Normandy is a retired teacher, and some of her students did a chemical analysis of the clay and did not find any salt in it. They did find calcium phosphates and calcium nitrates. "Of course cattle have to have phosphates and nitrates in their digestive cycle just as much as they have to have salt," she said. "We were getting ready to ask for a historical marker for the place when we found a marker had been placed over in Greene County saying that was the Great Buffalo Lick.

"Three years after we did this one, two of my other students ran the same tests on that clay we had run on this. We found, first, only yellow clay and we found some sodium chloride, sodium bromide, sodium iodide—nothing with the sweetish taste Bartram described."

Since the Greene County lick is only a few miles away, Mrs. Normandy suggests that buffalo may have moved back and forth between the areas getting from both places minerals they needed.

Displays showing the results of the tests the students made are in the Bartram Trail Library which Mrs. Normandy established at Philomath. The library, in a small rustic building behind Mrs. Normandy's family home, contains such things as a portrait of Bartram, prints of his drawings, a copy of his family tree, and copies of various editions of books about his travels.

Regrettably, Bartram's personality and character have been clouded by time and conflicting biographers. Some have depicted him as a paragon; others, almost the opposite.

William was the third of seven Bartram boys and at the age of 17 was apprenticed to a Philadelphia merchant. Five years later he moved to North Carolina where he operated a store for four years. In 1765, he accompanied his father on a trip through Georgia and east Florida, remaining behind when John returned to Philadelphia the following year. Bartram devoted 1766 to a financially disastrous effort at growing rice and indigo along the St. Johns River. Returning to Philadelphia in 1767, he stayed there three years before going back to North Carolina in 1770. In 1772, Dr. Fothergill became his patron and Bartram set out for Georgia in 1773.

Grady Bell, founder of the Bartram Trail Society and its only president, says, "My impression is that Bartram was a person with more or less a one-track mind. He was interested in nature and little else. He couldn't

Jimmy Valentine

Rabun Bald (right) in northeast Georgia and Shell Bluff on the Savannah River (below right) were two of the places visited by Bartram.

Bob Humphries

make a living. He couldn't hold a job. He couldn't even raise indigo down in Florida. But he could sell his drawings. While he was working in a store in Philadelphia, if he saw a new plant or a new animal or a new fish or whatever, as he started to work in the morning, he would stop and draw a picture of it instead of going to work on time.

"Somebody wrote a book about Bartram and said he did such things as let his horse walk on stalks of corn when he was in or around an Indian village,"Mr. Bell continued. "But I doubt that. He got along well with the Indians. He was able to visit them and talk to them. The information he sent back to England about them at that time was information they'd never had."

Robert Humphries, vice-president of the Bartram Trail Society, has a somewhat different opinion. "He was interested in people and culture, and he was, at least during one period of his life, quite a philosopher," Humphries said. "He was very well educated and, I think, a good writer. His book was immediately popular. It was translated into German and French. That says something for him. People like Thoreau knew and read Bartram. There has even been a suggestion by some that Longfellow's "Hiawatha" may have been influenced by Bartram's account of the Indians. He had to be, for his time, an erudite man."

Bartram himself gives some insight into his nature in an account of an evening during his travels: "How supremely blessed were our hours at this time! plenty of delicious and healthful food, our stomachs keen, with contented minds; under no control, but what reason and ordinate passions dictated, far removed from the seats of strife.

"Our situation was like that of the primitive state of man, peaceable, contented and sociable. The simple and necessary calls of nature were being satisfied, we were altogether as brethren of one family, strangers to envy, malice, and rapine."

Bartram was a young man who loved the peace, sights, sounds and adventures of the outdoors and apparently preferred not to detract from his enjoyment of them by working any more than was absolutely necessary.

He got by with it, and when people think of him, many do so with a touch of envy.

the Satilla...

from Atkinson to Burnt Fork

By Bill Morehead
Photos by Chris Miller

The shallow Satilla is more suited for canoeing than for john boating, as the author discovered.

"Hold up! I can't keep this thing going," I yelled at the boat in the lead. The 20 h.p. outboard sputtered and died on me after only the first 20 yards of our expedition. Visions of spending the coming night in a motel while waiting to get the motor fixed began to supplant the images of my small tent sharing a Satilla sandbar with the turtles and the stars.

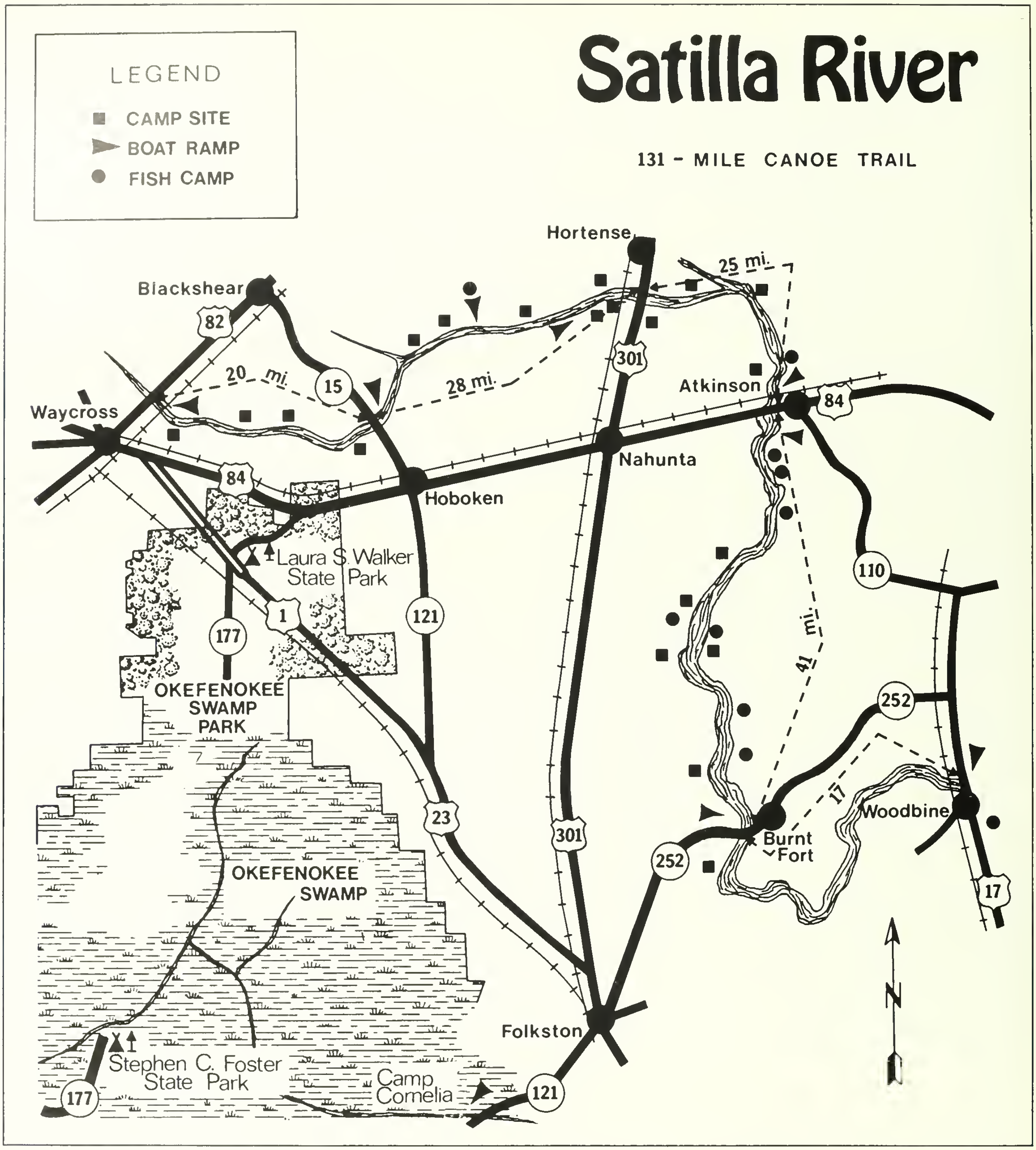
"The way this thing sputters, sounds like the gas line is blocked," said Ron Lynn, one of the other four on the trip. Ron is a ranger with DNR, assigned to the general area of the Satilla and, having been raised on its banks, knows the river well.

I blew like a trumpeter on the gas line, and finally the clog came clear—we were on our way. We had chosen to put in near the little town of Atkinson (Brantley County), near Milepost 93. Two days and some 40 miles later, we would take out at the town of Burnt Fort in Camden County.

Since we wanted to take a lot of photographs and also do some fishing, and since we didn't have the leisure to be on the river three or four days, we decided to negotiate the river in shallow-draft john boats with lightweight kickers. A canoe, we were to find out, might have been a more suitable vessel.

Satilla—the very name is a fascination. First named the Ste. Ille by the French explorers Admiral Gaspard Coligny and Jean Ribult in the 1500s, the name changed under the Spanish to the Santa Illa, changed again under the English to Santilla and finally came to rest as the American Satilla. The very name is a history book.

The first thing we discovered was that the Satilla in late spring is often too shallow to negotiate with shallow-draft john boats and little kickers. Boaters are likely to spend most of their time lifting the motor out of the water to ease over a stump (or having the motor lift itself out of the water as it bumps over a stump). They are likely to spend some of their time paddling the shallow draft boats or, just as likely, towing the boats behind as they walk over the umpteenth rice-white sandbar.



Rising from the agricultural plains of Ben Hill County, writhing like a snake over its 200-mile length, the Satilla empties into St. Andrews Sound in Camden County. Coursing, with its tributaries, through 14 counties in southeast Georgia, the river touches the magic swamps of Raulerson, Knickerbocker and the Okefenokee.

A river and a river trip do not make for simply a geography lesson—they provide experiences. In an attempt to capture these experiences I took notes along the way—notes of impressions. These are my visions of the Satilla.

FIRST DAY

Easing round an undercut bank with the myriad roots of water oaks exposed, the Satilla flails your senses. I have read that the Satilla is a pretty, but modest, river—especially compared to its larger, bolder cousins the Altamaha, Ogeechee and Savannah.

Modest does not come to mind, but other adjectives leap out as we begin our trip. The color of the water is lacquered with the sweet

The many white sand beaches along the Satilla provide good camp sites and good nesting places for turtles and other wildlife.

Leo T. Barber, Jr.

browns of vegetation. The fingertips of the afternoon sun—finding their way to the surfaces of the ripples, to the tail feathers of a hawk above, to the dark places underneath the banks — suggest a luster of deep experience to the river. The turkey oaks, red bays, huckleberries, the black willows, all stand before the taller pines and water oaks and give the mind and senses luxury, just as the plants themselves give the bottomlands luxury.

Behind me, the audible slap of the water by what I know to be a feeding bream is comforting. The curved neck of a heron raises to a mainmast of suspicion. We are paddling and drifting and he cannot hear us, but he raises his head just the same. He flies away; he cannot bear the company of us humans. We round a bend and interrupt a family conference of wood ducks. The little ones, too young to fly, paddle with yawing tails after their folks. The three-foot alligator in the duckweed watches them swim away with as much (or more) interest as we have.

For the tenth (twentieth? thirtieth?) time the motor bumps and stalls as it hits the sand I can see is only inches away from the bottom of the boat. Yet, it always seems to catch me by surprise. I always feel that somehow it isn't my fault. (Of course it is.)

For the fifth or sixth time the motor, underway in a deep pool, hits a stump or log. It is a reminder, a jolting reminder, that the trees own the deep water, just as the sand owns the shallows.

We own nothing; we're just visitors: not welcomed, not unwelcomed, just visitors.

If you put in at Atkinson at 9 or 10 in the morning, you can just about make it halfway to Burnt Fort by 5 or 6 in the afternoon. This will give you time enough to set up camp before nightfall. Your main difficulty in locating a campsite along this stretch of the river is deciding which among hundreds of absolutely beautiful, breathtaking sandbars you want for your camp.

NIGHTBANK

It is astonishing the way such little things—like sand gnats—can cause a fully grown human to come alive with pain and scratch his head like he'd had the biggest and best idea of his life.

Mosquitoes are honorable foes—they attack front rank and brave. Yellow flies are crazy, zooming in like kamikazes. But sand gnats are the guerrillas of the insect world. By the time you feel their bites, they have occupied your earlobes and toenails and have claimed the territory for the Empire of Gnatidome.

It is ominous the way the sun goes away on the sandbar in the Satilla. It leaves just as a salesman leaves who's waited to see the proprietor all day and can't get in. One moment he's there, the next he's gone and you didn't see him go. The sun simply, unassumingly leaves. And darkness rushes eagerly to occupy the retreat.

It is brooding the way the owl sounds as the stars climb high. The cheerless, uncompromising sound of the owl glides through the night on its own feather-tips.

Even the Satilla sky cannot escape the works of man. Little lights walk the sky to the tempo of bullfrog booms. We see a light that some in the group, huddled around the campfire like scouts telling ghost tories, say is a satellite. The Milky Way—striping the sky above the sand bar on the Satilla—seems far above the moving lights, just as the spit of sand here seems removed from the twentieth century. It is easy to sleep on Satilla sand.

Good fishing awaits those who canoe or john boat down the Satilla.

MOCKINGBIRD LIGHT

Something wakes me. It is a mockingbird perched outside. He sounds exactly like a politician on television, answering a lot of unasked questions. His imitation of a crow would never make the Gong Show, but his cardinal is darn good. When he does his doorsqueak version of a grackle, I climb out of the sack.

I'm not the first to be up. A cooking fire crackles as Ron feeds the flames. With a cup of coffee in my hand, I saunter over to the river's edge. Sometime in the night, a turtle (loggerhead?) crawled up on the sand bar, laid her eggs and crawled back. Her tracks tell her story better than my words do.

A couple of splashes send us to our fishing gear. We work the water a while (without much luck) but wind up spending the dawning on breakfast. We clean the campsite in the rushing warmth of the sun topping the trees and push off downstream. We are near Cypress Creek, Ron says, near Milepost 76. Not quite half way.

SECOND DAY

The sun is really up now and yesterday's pink-blushed skin could be, without proper care, today's sun poisoning.

The desire to fish stops us several times. We try, really hard, but we have no luck. "Water's too low," says Ron. Crescent sandbars mark the inside of every meander. The kickers stay up more than they work. We aren't making good time and, if we don't do better, we may not make the take-out point before nightfall.

During lunch (near Milepost 69) we discuss our need to make better time. Ron suggests we put the kickers to work, running them fast enough to plane the boats. By so doing, and taking the water side of the sandbars, we can see any obstructions ahead of us. We will avoid deep pools with their hidden and dangerous logs and roots.

Zipping along in inches of water, I am surprised at the shallow drafts of the boats. We see an entirely different Satilla now. Intently looking for jutting knobs that would throw us, we get a working riverman's view of the river. It is the view of roughly using the river only as transportation.

Sandbars are no longer beautiful; now they are also friendly and open. You can see their logs. The browner, deeper waters—so much a pleasure to fish in—are suddenly dangerous. We avoid them since they could ruin our motors and give us a nasty thump.

Nevertheless, we bump unseen logs, we plough propellers through sand. (Later, at home, the prop on my motor will have to be replaced—ground by the sand to two-thirds its original size.) And we don't make good time. The water is too low for motors. The fuel we carefully allocated for the trip is not going to be enough—wasted by the racing of motors in a natural traffic jam.

Around the bend at Box Landing (Milepost 63) we see some local fishermen. In answer to our question, the man and woman show us 30 pancake-size shellcrackers. "Water's too low," they say. Everything is relative.

At Milepost 59 (7 miles from Burnt Fort) we decide to take out. There is a flurry of activity in the hot, late afternoon as we relay vehicles to boats.

The five of us are tired and thirsty. We agree we have jon boated a canoe river. Driving back, glad to have been on the Satilla (and honestly glad to be back in the comfort of civilization), we talk about the name the older natives give the river. The Great Santilla. I call it beautiful.

a showcase of Wildlife Art

By Susan K. Wood

Remember *Outdoors in Georgia's* January 1977 cover? Dale Cochran's hooded mergansers sparked a chorus of "oohs and aahs" and prompted many of you to call or write to find out where to buy the painting. Cochran's doves which graced our September/October 1977 cover caused that same reaction.

Maybe you recall "Healan's Mill" (our February 1978 center spread), one of Jim Darnell's newest painting, or his "Requiem for A King," that beautiful quail wagon we brought you in February 1977.

These are just two of the talented wildlife artists *OIG* has introduced to you over the last several years. And at the Southeastern Wildlife Art Show, scheduled for October 20-22, you can meet about fifty other outstanding wildlife artists from all over the country.

For the third year, *Outdoors in Georgia* will sponsor their Wildlife Art Show at north Atlanta's Perimeter Mall, located at Ashford-Dunwoody Road at I-285. By browsing through a mall filled with paintings, drawings and etchings (both originals and limited edition prints), photographs, and some of the most beautiful wood carvings you've ever seen, you can discover an art specialty you'll find fascinating. If you enjoy the outdoors, whether you're a hunter or non-hunter, you'll appreciate wildlife art. And you can see some of the best wildlife art in the country right here in Georgia.

Almost four years ago, a few of the folks who work to put out this magazine began toying with the idea of sponsoring an art show devoted exclusively to wildlife—animals, fish, flowers, etc.—as a service. Wildlife art is a still somewhat overlooked specialty though it is growing in popularity all the time. As people come to appreciate nature more, it seems they come to appreciate and enjoy wildlife art.

OIG had reprinted some works of artists like Atlanta's Dick Parks and *OIG's* own art director Liz Carmichael Jones and had found that readers were particularly interested. Each time an issue contained some wildlife art, the office was deluged by requests on how to contact the artist or, more often, "Could I get a copy of that cover without the words *Outdoors in Georgia* on it?" Clearly, then, our readers — outdoors enthsuiasts, generally — were interested in wildlife art and wanted more of it.

So the Southeastern Wildlife Art Show was launched, and after two years the show has built a reputation among artists and art collectors as well as "regular folk." People from as far away as North Carolina have come to Perimeter Mall during the third weekend in October to look at and sometimes buy excellent quality wildlife art at amazingly reasonable prices. School classes, especially those studying art or wildlife, have come out to the show to "explore." Business executives browsing through the mall have decided to decorate their offices with limited edition prints and originals and exquisite wood carvings purchased at the show. And many bird and animal lovers and sportsmen have found the perfect addition for the den.

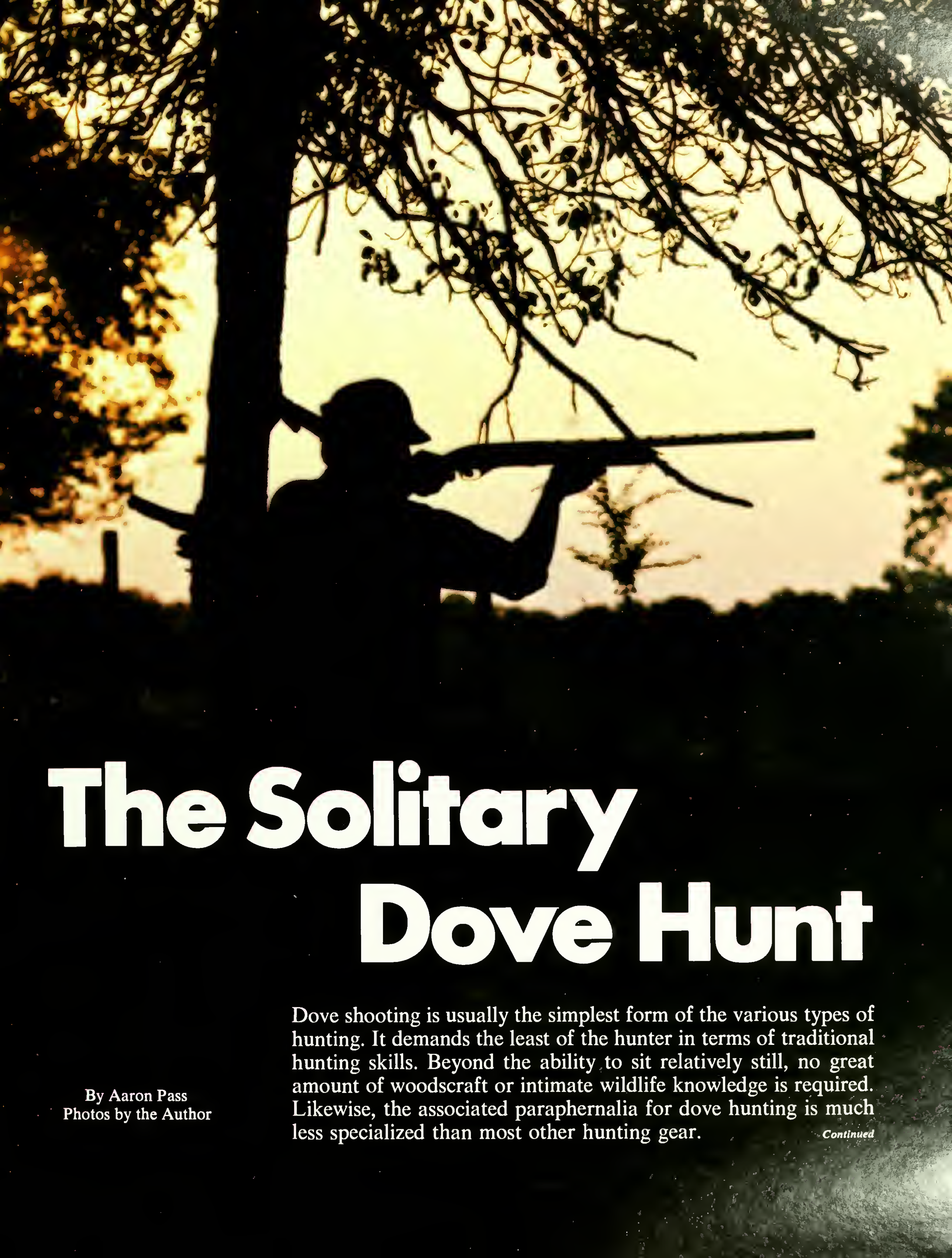
Both sporting and non-sporting art are represented at the show, where many of the next decade's most well-known wildlife artists are making their name. In fact, if it came to categorizing the entries, there would probably be more art of a non-hunting genre.

Atlanta's Dick Parks, for instance, specializes in song birds, Audubon style, as does John Sill of Franklin, North Carolina. Others, like A. C. Gentry of Tyler, Texas, Shade Steele of Alligator, Mississippi, and William Rodgers of DeLand, Florida, have in the past made their name by painting wildlife such as deer, quail and ducks. You'll find hunting scenes, fish, wildflowers, animals of every description and even some lovely landscapes featuring wildlife, all illustrated through a variety of media: watercolor, oils and acrylics, etchings, pen and ink, pastel drawings, plus scratchboard, wood sculpture and photography.

Last year's exhibitors, some of whom you have probably heard of before and will surely hear from again, included:

Richard Parks, Atlanta (Third Place in Watercolor)
Michael Miles, Douglasville (Third Place in Drawing)
Jim White, Cairo
Paula Whelan, Stone Mountain
Betty Anne Durant, Atlanta
Curtis Mitchell, Athens, Tennessee
William Rodgers, DeLand, Florida
Norma Jean Hewitt, Virginia Beach, Virginia
A. C. Gentry, Tyler, Texas
Jack Lawrence, Orlando, Florida
Joyce Simpson, Smyrna
Janet Warner, North Miami, Florida (First Place in Prints)
Shade Steele, Alligator, Mississippi
Al Carraway, Montgomery, Alabama (Second Place in Watercolor)
Daniel De Mendoza, Sanford, Florida
Linda Howard, Gulfport, Mississippi
Peggy Perkerson, Tallahassee, Florida (Second Place in Prints)
Ansel Andrus, Jacksonville, Florida (Third Place in Sculpture)
John Sill, Franklin, North Carolina (First Place in Watercolor)
Charles Sill, Franklin, North Carolina
Jim Wilson, Gainesville, Florida
Harvey Moriarty, Atlanta
Grace Derascavage, Hampton Bays, New York (Third Place in Photography)
Jim Kilgo, Athens (First and Second Place in Sculpture)
Judy Mizell, Charlotte, North Carolina
Ann DerGarabedien, Marietta
Dennis Bushey, Hurtsboro, Alabama
Darlend, Ocala, Florida
Meredith Meeks Bolles, Marietta
Karin Christian, Marietta
Jim Darnell, Oakwood (First Place in Painting)
Robert Rives, Atlanta
Barbara Keel, Auburn, Alabama (First Place in Drawing)
Barry Nehr, Lithonia (Second Place in Drawing)
J. J. Owen, Smyrna (First and Second Place in Photography)
Calvin Hill, Atlanta
Lee Cable, Tampa, Florida
Cheryl Werkheiser, Smyrna
Charles Sterchi, Loganville
Clarence Mason, LaFayette
Ralphael Robinson, Decatur

Make plans to attend this year's Southeastern Wildlife Art Show, October 20-22 at Perimeter Mall in Atlanta. The show will be open from 10 a.m. to 9 p.m., Friday and Saturday and 12 to 5 on Sunday.



The Solitary Dove Hunt

By Aaron Pass
Photos by the Author

Dove shooting is usually the simplest form of the various types of hunting. It demands the least of the hunter in terms of traditional hunting skills. Beyond the ability to sit relatively still, no great amount of woodscraft or intimate wildlife knowledge is required. Likewise, the associated paraphernalia for dove hunting is much less specialized than most other hunting gear.

Continued

Waterfowling has given us the duckboat, duck calls, decoys and three common retriever breeds. Quail hunting is responsible for a whole class of shotguns, several breeds of dogs, a style of hunting clothes and even specially rigged vehicles. Deer hunting contributes a host of tree stands, fluorescent orange, several rifle calibers and even two varieties of deer scent.

Dove hunting is usually conducted with whatever shotgun comes to hand and a considerable quantity of shells of the "quail" load class. Camouflage clothing is often worn but isn't absolutely necessary. Dogs, decoys and calls are not generally used. So far, dove shooting's main contribution to the sporting goods business seems to be a camouflaged version of a camp stool known as a dove seat and the ventilated shell vest for hot weather hunting.

A great degree of woodscraft and specialized equipment simply aren't necessary for the style in which most dove hunting is done. The classic southern dove shoot has been well described as a social event. Often preceded by a barbecue or other generosity on the part of the host, the participants (perhaps as many as 200) meet at midday and leisurely proceed to the field(s). The doves have been located in a large, recently harvested field and, barring bad weather, that is where they will be. Cars are often driven right up to the shooting stations—so much for woodscraft. The seemingly large number of hunters is important to the dove shoot strategy as they are necessary to keep the birds moving from one field to another and even from one end of a large field to the other.

Doves are pretty single-minded and are loath to give up on a field that they like. If the owner is wise, he can furnish several quality shoots per season by not allowing late evening shooting and by resting the field between shoots. Likewise, camouflage clothing helps, but a hunter who is fortunate enough to pick a stand along a preferred flight line is going to get a lot of shooting even if he is dressed in a purple and orange Hawaiian shirt and an electric green baseball cap.

Of course things can and do go wrong. A sudden cold snap will foul up an otherwise good field, and the sudden harvest of peanuts or some other dove delicacy on adjoining farms is sure disaster for the best planned shoot. But on the whole, the big-field, big-crowd dove shoot is about the most consistent and proven of dove hunting methods.

This is great if you have access to both a big field and a big crowd, but let's suppose that you don't. Perhaps you don't care for the mob scene or maybe you have a day off that doesn't fall on the weekend. In such circumstances the traditional dove shoot is not your cup of tea. Even if you could get permission to shoot some of the weekend fields (unlikely since the manager usually wants them to "rest"), you would not be very successful. Doves are no fools. If someone is shooting at them in one spot, they are perfectly capable of avoiding that spot.

The solitary dove hunter is looking for a different situation and here is where the dove hunting ceases to be simple. Again, not much pure woodscraft is involved, but considerable knowledge of dove habitat is required. Besides food, doves need two other commodities—water and grit. They also tend to follow established flight lines in their movement. These factors are the keys to successful solitary shooting.

Water is your best bet. Doves prefer open water with clean approaches, i.e., they are not going to land and walk about on a brushy stream bank. A sand bar is perfect for it produces grit as well. With a few scattered trees for loafing, you could be looking at a dove paradise. Walk into such a spot and spend a few minutes one evening before the season. If you see no doves, something is wrong. Western hunters have long used stock tanks for dove shooting. However, in the East, heavy rains which make mud puddles available will temporarily cut down water hole utilization by the birds.

Pass shooting is another alternative. Doves tend to habitually fly along a general "lane" as they go about their daily routine. Find these aerial avenues and you can have good, consistent, if somewhat difficult, shooting all afternoon.

Another possibility is the small field. Find a small (1-3 acre), harvested grain field (usually corn in this small a unit) and get shooting permission. This can be productive at any time but is particularly good when the big shoots are going on nearby. The small field is usually overlooked by the hordes of hunters but not by the doves. You may need a couple of partners to exploit the small field, but it is still less nerve shattering than a really big shoot.

How do you find such places? Through a bit of work and observation. Travel out to some known dove shoot areas before the season and look around. Avoid the big fields themselves but try to circle them on country roads. Pause on open hilltops (doves even prefer to fly over open land) and watch. Pay particular attention to stock ponds in the late afternoon. Binoculars are useful here, and if you're really serious, county road maps (available from the Department of Transportation) are invaluable.

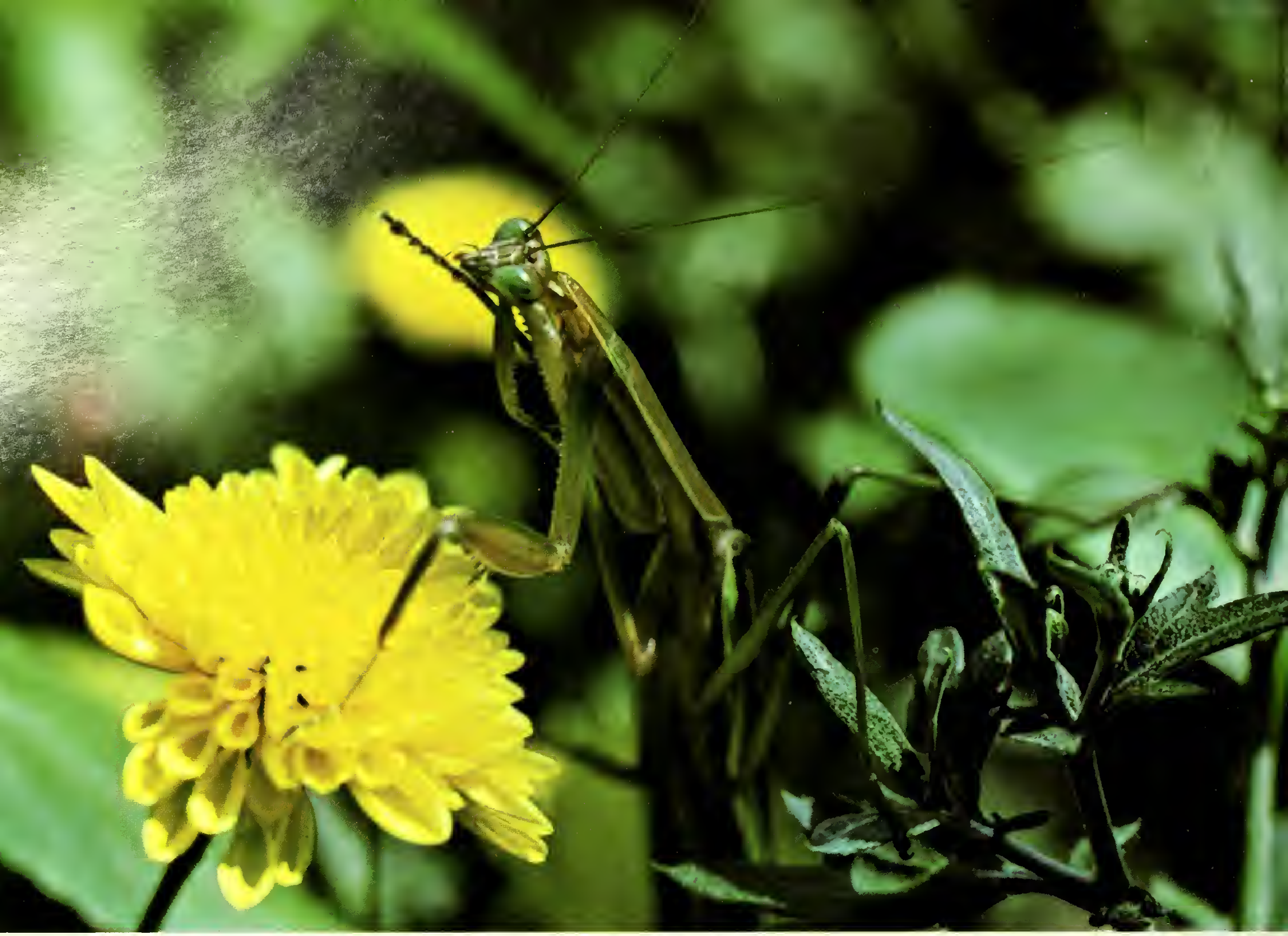
When you locate an obvious flight lane or water hole, approach the landowner for permission to hunt. Then *and only then* go back and specifically look over the intended shooting site. Never trespass, even for just a look around. Again, binoculars can be very useful.

This type of shooting is enhanced by some paraphernalia. A good dove gun and camouflage clothing are obvious needs, but dove decoys and calls are useful as well. A half dozen decoys will pull wide passing birds into range and the dove call may also help. The call is particularly useful for locating birds during scouting forays in the late afternoon.

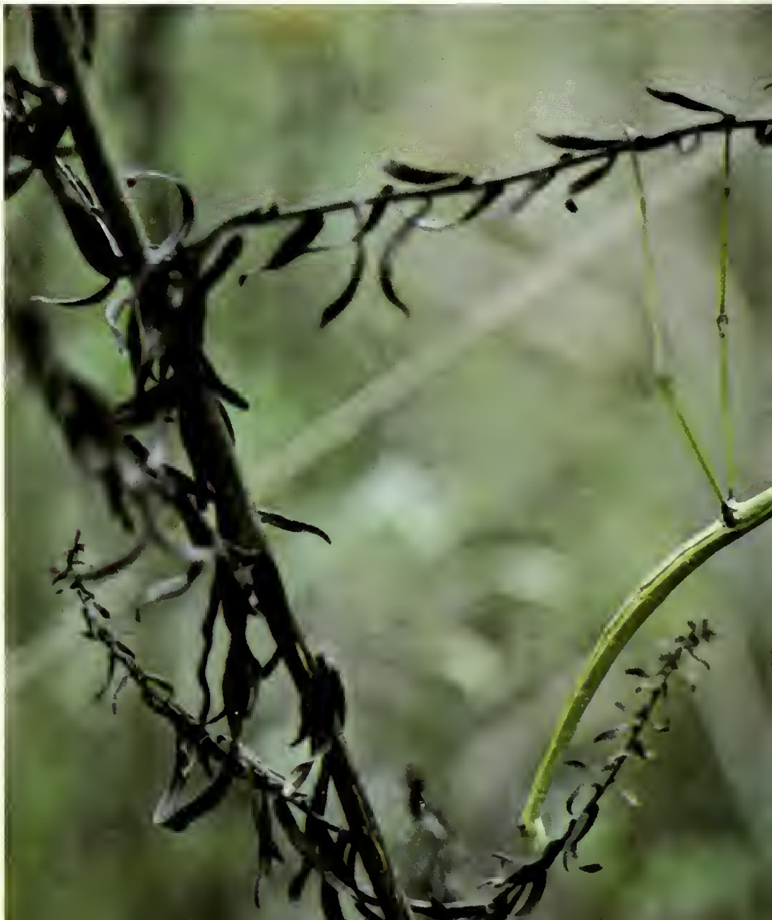
This sounds like a good deal of trouble and, frankly, it is. It is also less successful (on a consistent basis) than the organized field shoots. Seldom will a flight lane or water hole produce more than 25 shots in an afternoon. So why bother? Well, there are some advantages like the earlier example of a mid-week holiday when you are on your own during dove season and simply want to get away for a few hours. It is also a great way to introduce a youngster (dog or child or both) to actual hunting conditions without the distracting turmoil of a "real" hunt. There is no competition for the young shooter and the young retriever can be hunted without excessive discipline to control his natural desires to retrieve every downed bird regardless of who shot it.

I know a small, pastured creek bottom where a neighbor's cattle keep the banks worn clean (water), beside a railroad track (grit) and near a pine stand (cover) which has always produced dove shooting. Overlooking this little valley is a high pastured knoll from which one can see the Appalachian Mountains some 50 miles away. On the knoll there is a stand of pines, a stock pond and a dove flight lane going down to the valley. A boyhood friend and I have shot this spot for years. and I wish that I could buy back every shell fired there at its original price. We've never killed a limit that I remember, but on a couple of occasions we've had shooting when our elders who went to "real dove shoots" got skunked. He is training his oldest son there now.

It may take a few trips over several seasons to find such a spot, but once found it is a gem. It is a secret worth being guarded and protected. For in the otherwise hustle and bustle and heavy competitive world of dove shooting, here you can spent a quiet afternoon.



The Chinese mantis (above) is now widespread throughout the Piedmont area of Georgia. The creeping walkingstick (below) is well-hidden in its natural habitat.



AUTUMNAL ARTHROPODS

By Don Shadburn
Photos by the Author

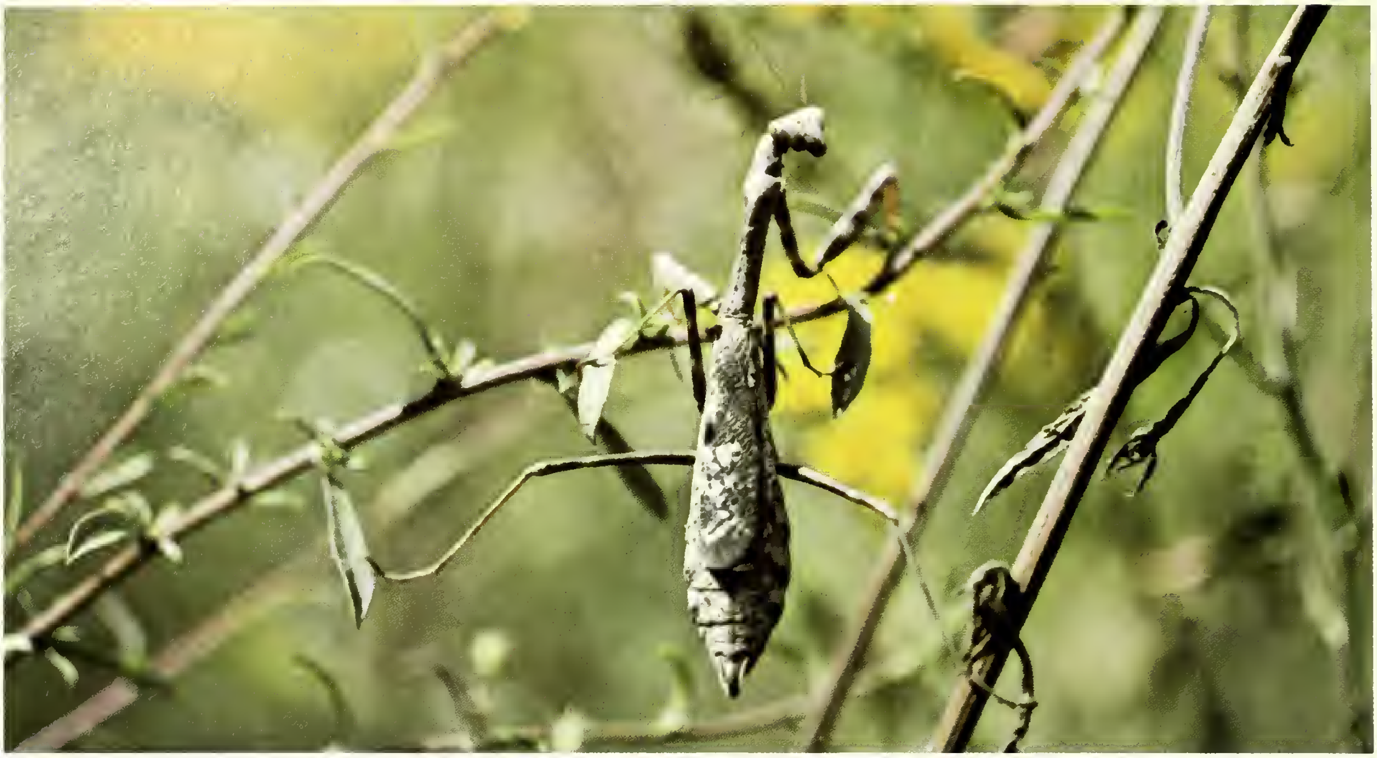
Nature is filled with miracles and curiosities. And each change of season brings its own parade of spectacular wildflowers and unique animal types.

Many amateur naturalists and collectors eagerly await the crisp autumn days that signal the season of the showy golden garden spider, the awesome-looking praying mantis and the timid, inoffensive walkingstick.

These small jointed-legged creatures called arthropods live in a jungle of tall grasses, weeds, tree limbs and dying foliage. Amid these mini-jungle settings, dramatic struggles for survival are enacted daily: an ecological chain of little animals, each feeding on the other, or trying to avoid being eaten, the stronger surviving on the weaker; each, in its own inimitable way, capturing food through ingenious entrapment, ambush or simply by stealthy stalking.

THE PRAYING MANTIDS

Three familiar species of praying mantids are found throughout Georgia's Piedmont country, but only one, the Carolina mantis *(Stagmomantis carolina)*, is indigenous to this region. At least one form of the European mantis *(Mantis religiosa)*, somewhat larger than the Carolina species, is found in the state. Averaging 4 to 5 inches in length, the giant Chinese mantis *(Tenodera sinensis)*, a terror in the world of



The Carolina mantis.

arthopods, was first introduced into this country around the turn of the century. Since then it has spread into many of the southeastern states. including much of Georgia. Once a rare sight, it has now become commonplace.

The voracious mantis is a six-legged hunter unlike any of its insect relatives—a fearsome (and fearless) predator with a pair of deadly forelimbs equipped with a double row of barbs and terminal hooks resembling a scythe. (In larger female specimens, the forearms may measure more than two inches long.) In spite of its limited stalking ability, due to its narrow field of vision, the mantis manages to feed an almost insatiable appetite. It spends hours, sometimes days (or nights) poised in the same location with arms uplifted in a mock gesture of prayer, waiting with infinite patience for an insect to pass within its grasp. When a bug, grasshopper or even one of its own family chances to stray near, the mantid's forearms spring with lightning speed, clutching its prey in a death-grip. It then bends its nimble head and cross-cut jaws with knowing precision to sever its victim's head. When the feast is over, only a few pieces of wings and legs remain as evidence of the silent struggle.

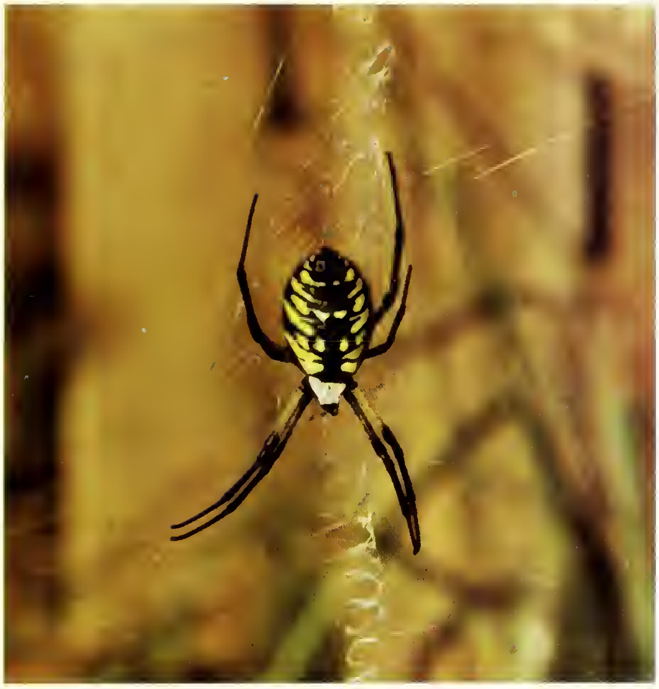
Any autumn day is a good time to go mantis hunting. And anywhere is a good place to start, for the mantis prowls in a variety of haunts: yards, flower beds, hedge rows, city sidewalks and buildings, roadside fields and gardens. The collector may find them in a wide range of colors. The Carolina mantis may be green, brown, grey (or any combination of these colors), or perhaps even pink. The Oriental species is more limited in its coloration; males are brown or green and brown; females are often pale green or have brown forewings, dividing into green lower wings.

Praying mantids make interesting and harmless pets, in spite of the still-persistent belief that they may be dangerous to handle. In the South, children were taught to stay clear of this nemesis of the devil. If handled or approached too closely, they were warned, the mantis would "spit" in their eyes and cause blindness. Hence, the mantis was popularly known among the more superstitious folks as the "Devil's Riding Horse."

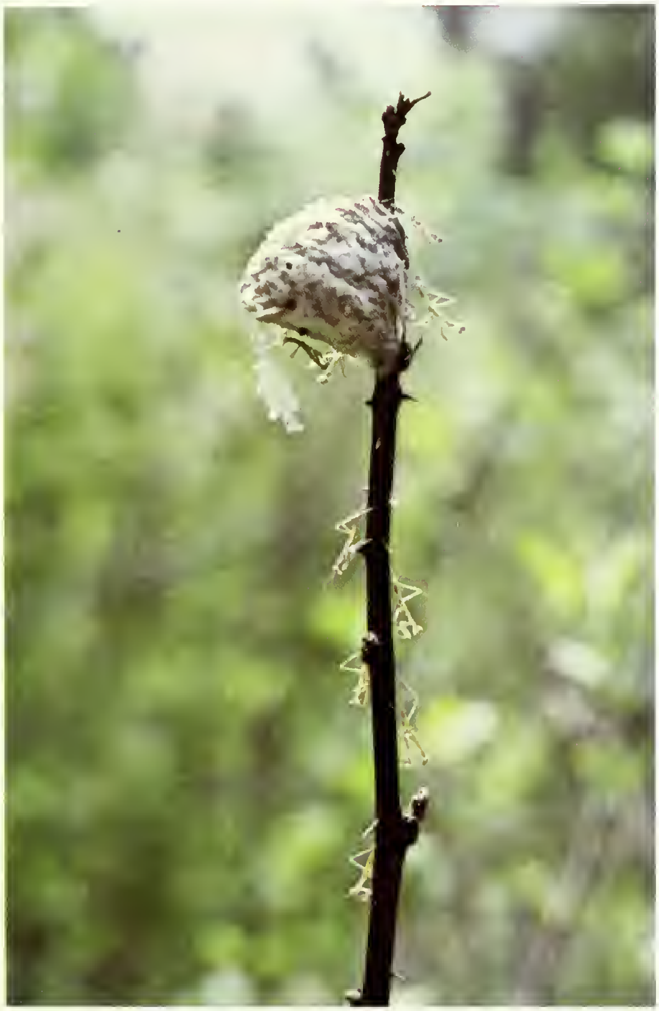
The Carolina species is just the right size to be an excellent fly-catcher; it can easily snatch a house-fly out of mid-air. The female is a worthy opponent, too, by standards of size and weight, at least among her own kind. When two females come within sight of each other, for example, their true temperament and fighting ability are demonstrated. They suddenly rear, spread their forearms in a warning gesture, arch their abdomens, and unfurl their brightly colored underwings into a vertical fan. In this defensive posture they resemble a miniature Pegasus. Following a few preliminary strikes, they finally come together in a do-or-die battle; only one will emerge as the champion.

In captivity female mantids become more languid and docile as they eagerly accept food and water and grow larger with eggs. Males of the several species often remain flighty and defensive when captive—until brought into the presence of a female seeking a mate. All require more water than plant-eating insects and will die quicker from dehydration than from lack of food. On hot days, during a drought, they have been known to

Aaron Pass



Golden garden spider.



Newly hatched Chinese mantids push their way out of the egg case.

congregate in surprising numbers around the drip of an air-conditioner.

The female of the species spends much time in grooming herself: she cleans her forearms from the hooks up and methodically feeds her long antennae one at a time through her mandibles for a thorough washing. Then, with her forearms, she massages her face and large, oval-shaped eyes which protrude from a triangular head. Next, demonstrating her ability as a contortionist, she turns and hooks the nearest leg with her thick arm, draws it to her, and cleans it from the knee down. She then repeats the rapid cleaning process on each leg.

Normally the mantid's bulging eyes vary somewhat in color or shading from one specimen to another. They may be pink, light green or pale brown. At night, however, in the absence of sunlight, their eyes become dark brown, almost black—a change apparently necessary for this near-sighted prowler to maintain a nocturnal vigilance for additional food. When sunlight reappears, the mantid's eyes change to their natural color again.

The lifetime of the mantis spans three seasons, from spring to late fall. Sometime in the fall after maturing, they engage in a brief courtship. Following the mating period, which lasts from one to three days (depending on how long the female will tolerate her mate), the female—larger and more gregarious—often dines on her submissive spouse. Within a week to ten days after mating, she prepares a honeycombed egg-case, called an ootheca, which is cemented to a weed, branch or convenient structure. As a rule they make only one egg-case. But a few captive specimens, properly fed and watered late into the season, have been observed to make two or even three egg-cases, while mating only once.

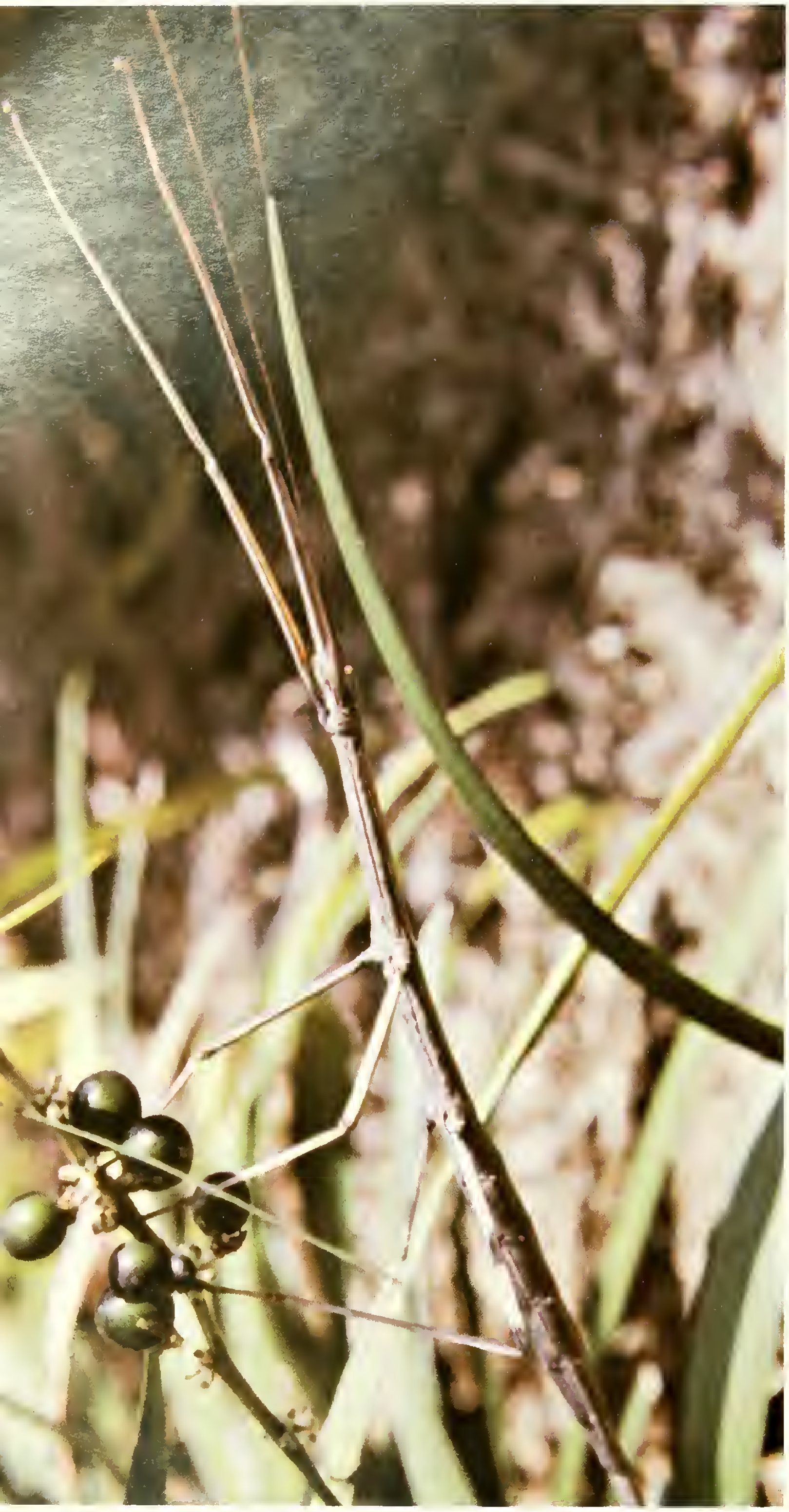
The ritual of making the case, with eggs deposited between the layers, lasts from one to four hours. The light, tan-colored foamy material then dries and hardens with the texture of a porous synthetic substance.

Now, having insured the survival of her species, the mantis slowly dies away as colder weather approaches. If her egg-case survives the harsh winter weather, without becoming the home of numerous parasites, 75 to 100 young mantids will hatch the following spring. At that time the young mantids—pale, fragile and alert—emerge by the dozens through crevices along the top of the case. Born with the aggressive instinct of their parents, another generation of mantids are ready to play their important role in the chain of living things, feeding indiscriminantly among large populations of insect pests and arachnids.

GOLDEN GARDEN SPIDER

(Argiope aurantia)

The favorite haunts of the golden garden spider, one of nature's incomparable craftsmen, are late-summer gardens and fields of goldenrod where longhorn grasshoppers, crickets, butterflies and other prey abound. Here the garden spider weaves an intricate orb-shaped web of silk strands, with a white patch of scrollwork in



The wingless walkingstick.

Don L. Shadburn is a life sciences teacher and head of the science department at Roy P. Otwell Sr. Middle School in Cumming.

the center—thus giving rise to its common name "writing spider." A distant cousin of the mantis and walkingstick, the clever arachnid whiles away its time hanging head downward in the center of the web, waiting for an unsuspecting insect to charge into the sticky trap. When this happens, the garden spider rushes its entangled victim and quickly wraps it into a struggling mummy with sheets of silk. Then, to insure its captivity, the spider injects a mild (to humans, that is) venom into the prey through a pair of hollow jaws or chelicerae.

When threatened by larger animals, the garden spider starts a back-and-forth springing motion of its web, slowly at first, then more rapidly, until the danger has passed. If this fails to scare the intruder away, the spider will flee to safety in the surrounding vegetation.

Between September and Novmber the garden spider —identified by conspicuous markings of yellow-to-orange on black—lays her golden eggs. The compact egg mass, sometimes numbering 300 eggs, is wrapped loosely with silk and further enclosed within a protective egg-sac much like a silken cocoon in color and texture. The garden spider (a relative of ticks and scorpions) has been observed making two, sometimes three egg-sacs, leaving them suspended in a complex network of taut silk cords. In a field of brown and yellow tones, the egg-sacs are difficult to distinguish from common plant galls. Like the mantis, the garden spider never survives the winter, but the following spring a new generation of spiderlings hatch and crawl forth through the loose end of the encasement to begin their uncertain journey to maturity.

WALKINGSTICK

The wingless walkingstick (Megaphasma dentricus), another arthropod that puts in its appearance as an adult in the early fall, is true to its name: a light-brown, green, or gray stick-shaped insect that is well-camouflaged among the twigs and leaves of its favorite trees. And to better conceal its form in time of danger, or while resting, it clings motionless to a limb with two or three legs while extending its front legs and antennae rigidly, thus defying detection by the most expert predatory eyes. When a light wind blows, to mimic to perfection the form of a dead stick, the walkingstick will sway gently with the breeze. If touched while hanging in this precarious position, it will suddenly drop below like a broken twig and again lose itself in the surroundings.

The females of the southern species are larger than males, often growing to a length of five inches. In early fall, after mating, she drops her shot-like legs at random on the ground, where they remain through the winter.

During the first few weeks of spring the tiny walkingsticks struggle from their eggshells looking like miniature adults. They immediately seek out a suitable tree—preferring oak, walnut, or hickory—where they spend the summer months feeding on the green foliage. By late summer or early fall they have grown to such size that they can easily be seen if they stray away from their maze of tree limbs, twigs and fading leaves.

Pulaski...

The Fort that Failed

By Lucille J. Goodyear
Photos by Bob Busby

The pride and defense of Savannah! Strong as the Rocky Mountains!

Such were the prideful words used to describe Fort Pulaski, newly built in the second quarter of the nineteenth century as a means of guarding the river approaches to Savannah, Georgia. The latest design in fortification, it was considered invincible.

The construction of this fort was brought about as an aftermath of the War of 1812. Our country had fought England to a draw in that war and the memory of victories on land and sea lingered, as did the military disasters. President James Madison was one who particularly remembered the disasters and how readily England had been able to penetrate our defenseless shores, ravishing farms and hamlets along the Chesapeake, leaving the nation's capital in smoldering ruins. To prevent such humiliation from occurring again, the President conferred with military strategists and then employed Simon Bernard, the then-famous French military engineer, to design an impregnable system of defense—a chain of sea coast fortifications. Fort Pulaski, erected on low, grassy Cockspur Island at the mouth of the Savannah River, about 17 miles from Savannah, was to figure as a major link in the all-important defense chain recommended by Bernard.

Pulaski's construction of the five-sided fort began in 1829. Among the U.S. Army engineers designated to plan and build Fort Pulaski was a young second lieutenant named Robert E. Lee, on his first duty assignment after graduation from West Point.

Standing 32 feet high, Fort Pulaski was surrounded by a wide moat crossed by a drawbridge. The walls were of solid brick, 7½ feet thick. It was firmly believed that the protective moat, plus the thick casemates would make the fort as "strong as the Rocky Mountains."

Upon its completion, the fortification was named in honor of Count Casimir Pulaski, a Polish soldier of fortune who lost his life in the courageous but unsuccessful siege of Savannah during the Revolutionary War. (See July '76 *OIG* for more about Casimir Pulaski.) Ironically, before the United States could make use of the fort, it had to fight for its occupancy.

On January 3, 1861, as relations between the North and South were becoming strained, Georgia militia seized Fort Pulaski in the name of the state. South Carolina had already seceded and it was felt that Georgia would soon follow suit. This being the case, possession of the fort by the South was of importance.

At the time of this break with the Union, Savannah was a thriving city of about 20,000 with an important seaport trade in cotton, naval stores and timber. The leaders of Savannah were people of culture and wealth and although they were definitely divided on the question of seizing Fort Pulaski in the name of the South, they were, nevertheless, a solid body in regard to its defense after the seizure.

On January 19, 1861, Georgia did secede from the Union as had been expected, and a few weeks later the state transferred Fort Pulaski's ownership to the newly-formed Confederate States of America. By the end of April, the Civil War was no longer a matter of discussion and debate—it was a reality.

As history has recorded, the fortunes of the South looked bright and promising during the first part of the war. However, things took on a different perspective when, before the summer's end, President Lincoln ordered the Navy to blockade southern ports. As the blockade took effect, Confederate economy began to suffer; the future became gloomy for the South.

On November 7, combined Union naval and military forces seized a beachhead on Hilton Head Island, South Carolina, about ten miles from Fort Pulaski. Their orders were to recapture the southern forts and blockade the south Atlantic coast.

The Confederates abandoned Tybee Island by order of General Robert E. Lee, and in doing so gave the Union forces a base of operations. From the areas thus far captured, Union troops could readily work against Fort Pulaski and the rest of the south Atlantic coast.

The abandoning of Tybee Island proved to be a poor bit of strategy for the Confederates. In fact, it was a grave error, for it gave the enemy the only site from which Fort Pulaski could be attacked. Union forces were quick to realize their good fortune and moved with speed and organization against the fort. They first severed most of Fort Pulaski's communication systems with the mainland and then, ready for battle, moved in force to Tybee Island.

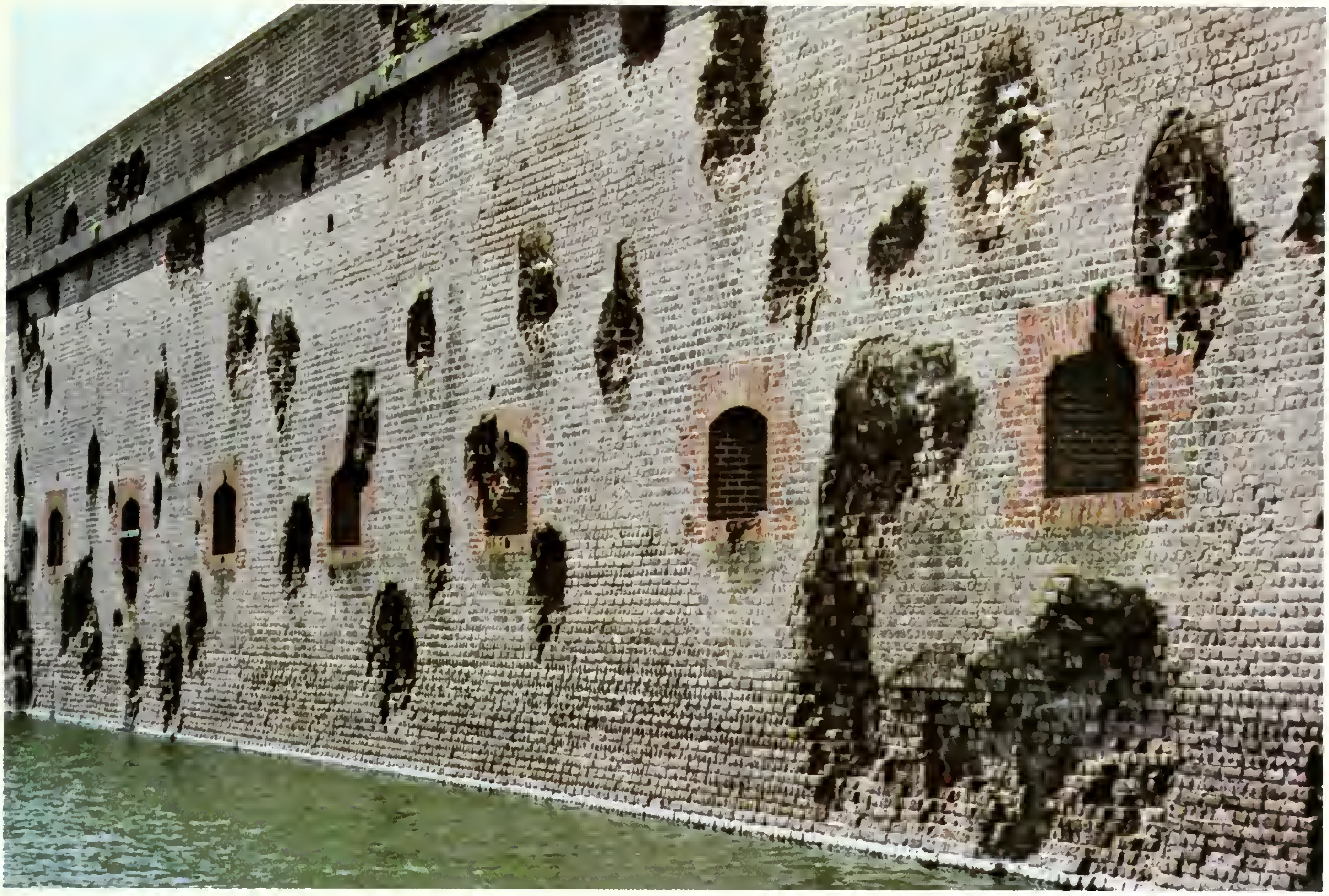
The Union commander, Engineer Quincy A. Gillmore, believed than an overwhelming bombardment could force the Confederates to give up Pulaski. He ordered eleven batteries of guns and mortars erected along the northwest shore of Tybee Island. With everything in readiness, Gillmore sent a courier under a flag of truce with a formal and final demand to surrender. The date was April 10, 1862.

The Confederates, having enjoyed the possession of Fort Pulaski for over a year and realizing the importance of its possession, refused the surrender demand. Upon receiving the refusal, the Union troops on Tybee opened fire.

Feeling certain of their position and having a sense of security inside the fort's thick brick walls, the Confederates were not particularly alarmed. After all, the Union guns were a mile or more away, over twice the effective range for the heavy ordnance of that day.

Again, the Confederates miscalculated. They were not aware of the fact that the Union armament included ten rifled cannons—destined to change artillery standards. For this reason, they were totally unprepared

After 30 hours of heavy cannon fire, Confederate Colonel Charles Olmstead gave the order for surrender.



The battle for Ft. Pulaski proved that masonry forts—even those with walls 7½ feet thick—were not impenetrable.

when projectiles from these weapons began to bore right through the thick brick walls of the fort.

By noon of the second day the bombardment had opened wide gaps in the wall, and explosive shells passing through these holes now threatened the fort's main powder magazine. Convinced of the situation's utter hopelessness and concerned about the lives of his men, the fort's commander, Confederate Colonel Charles H. Olmstead, gave the order for unconditional surrender.

It's not difficult to understand Olmstead's reasoning in the matter. He was a man with a high sense of honor and duty, but realizing the futility of continuing the fight, he ended the struggle in order to save the lives of his men. An insight into his deep feelings about the surrender came in an excerpt of a letter he later wrote to his wife. "You can have no idea of the ruin . . . Two casemates are completely torn to pieces, the outer wall having fallen out into the moat, while the casemates adjoining are cracked and crumbling from top to bottom . . . I feel that I have done my duty, my whole duty, that I have been forced to yield only to superior might of metal . . . "

The men in Olmstead's command and those who knew him intimately clearly understood his surrender, but there were those who never understood this act which has been discussed and debated for a hundred years. In fact, in many circles, Olmstead's actions are still debated.

Whereas Olmstead's surrender raised criticism and conjecture, the Union's leader, Captain Gillmore, was the hero of the day. His success in breaching the masonry fortification of Fort Pulaski brought him wide acclaim as an artillerist. He was later promoted to major general.

While there may have been questions in regards to Olmstead's surrender, there certainly was no mystery as to the fall of Fort Pulaski. It was a familiar story in which a new and more powerful weapon overcame an obsolete system of defense. The battle, brief and undistinguished though it was, nevertheless proved the superiority of rifled cannons over masonry forts. It had taken a million dollars, 25 million bricks, and 18 years of work to construct Fort Pulaski. In thirty hours, rifled cannons breached the walls and the fort failed in its first trial by gunfire. But those ten new guns that breached those walls did more than that—they also served as a proclamation to the world that the day of masonry forts had ended.

Lucille J. Goodyear is a freelance writer specializing in historic, travel and humorous articles. She lives in Guatemala, Central America.

Photos by Bob Busby

Storehouse of Georgia's Natural Treasures

By Paula G. Putney
DNR Printing Coordinator

The Georgia State Museum of Science and Industry, located on the fourth floor of the Capitol building, is a familiar haunt of both school children and adults. But many Georgians are unaware of the existence of the State Museum and its storehouse of natural treasures.

Since March 3, 1955, the Museum has been a division of the Office of Secretary of State Ben W. Fortson, Jr. Prior to that, it was supervised by the Department of Mines, Mining and Geology, now the Division of Geologic and Water Resources. By act of the legislature in 1889, part of the duty of the state geologist was specified as, "collecting, analyzing and classifying specimens . . . and causing to be preserved in a museum . . . whatever might be discovered in Georgia of scientific or economic value." Nothing was done until 1895 when the governor designated the corridors of the third floor of the Capitol building as temporary quarters for the museum.

Charles E. Fleming, director and curator, as well as taxidermist *extraordinaire,* indicates that the Museum now houses approximately 500 wildlife specimens in addition to its extensive collection of minerals and artifacts. For Fleming, the Museum represents a daily challenge of maintenance and renovation. He is constantly in search of new specimens, new space. Building new exhibits and finding new ways to "take" the Museum outside its walls into classrooms and meetings occupy much of his attention. But the art of preparing specimens, which for Fleming is both vocation and avocation, represents his primary interest. In order to reproduce wildlife forms accurately, a taxidermist must be a little of everything—anatomist, naturalist, artist, sculptor, carpenter, electrician. The dozens of specimens which line the Museum's cases and walls are more than adequate testimony to Fleming's skill.

All specimens and materials in the Museum are donations of one kind or another. Many have come from the Department of Natural Resources, the U.S. Department of the Interior, the U.S. Fish and Wildlife Service, as well as from private citizens. Mr. Fleming never turns down an offered specimen. If donations are not used in the Museum, they are given to other institutions such as the Fernbank Science Center.

A large proportion of the Museum's wildlife specimens are accidentally killed. Many are the victims of insecticide, automobiles and electric shock. Migratory birds often die as a result of flying into airplanes, buildings or windows. A fawn in one exhibit was stillborn. In recent years much state and federal legislation and the concern of environmentalists have focused attention on the importance of protecting our fish and wildlife. These factors have generated a new public awareness and a new environmental ethic. State and federal laws prohibit the possession of most species of wildlife, particularly birds, except for species designated as game birds. (Only starlings, house sparrows and "common pigeons" or rock doves are exempt from the protected species list.) In order not to waste wildlife specimens, provisions are made for their use by museums, nature centers and educational institutions. Possession is regulated by federal permit only and is strictly enforced. Special permits are issued for possession of an endangered species, and the specimen is then only on loan to an agency for educational use.

A visit to the Georgia State Museum is a rich learning experience. An impressive array of Georgia flora and fauna teaches much about the state and region. Many of Fleming's newer dioramas are located on the ground floor of the Capitol building. They are meticulous in their detail and display varieties of wildlife

Ed Brock

Diorama featuring a covey of bobwhite quail in snow (right). Striking feather detail of male ruffed grouse drumming and in display posture (below). On opposite page, two young visitors are dwarfed by Orca the whale.

Ed Brock

Bob Busby

in their natural habitats. Whenever possible, Charles Fleming utilizes real flora. But when it is not possible, he is more than artful with fiberglass. In several exhibits, it is almost impossible to distinguish between real pitcher plants and those made of fiberglass. One diorama showing a covey of bobwhite quail in the snow is the result of a personal experience. Mr. Fleming encountered the scene he later constructed while on a winter walk.

The beaver pond diorama is a replica of a real pond. Fleming photographed this scene and acquired the trees, stumps, even the chips that are seen from the original pond area. Another exhibit contains chipmunks contributed, accidentally, by the Flemings' cat. Two extinct species, the passenger pigeon and the Carolina parakeet are included in new dioramas. Both skins of these lovely birds, once so abundant in our region, were extremely old and required more than the usual care and time to prepare. To restore such specimens to lifelike beauty is both art and science.

In another exhibit three stately red-tailed hawks capture the attention. In still another, we view three pompous-looking ruffed grouse. But in both instances, Fleming has magically captured and restored the species' personality characteristics to such a degree that one half expects them to vanish at any moment. The fourth floor collection also includes a rare pigmy sperm whale and a white shark, impressive in its ferocity.

The artificial water in many of the exhibits is not, as Fleming would like you to believe, "pure dehydrated water," but a mixture of plastic and dyes. The illusion is such, however, that the stately herons and cranes appear quite at home.

A tour of the Museum with Charles Fleming is an education in itself. He points to minute flaws in a bird's feathers that will require renovation. He keeps careful track of items which will soon need to be replaced. He can recall the detailed history of all his acquisitions. One of the more recent additions is a killer whale. The size of this specimen made it necessary for Fleming to do some of his work outdoors at home. But juggling the whale between home and lab became something of a problem. The sight of Fleming leaving for the day carrying with him a barred owl or a partially completed wildlife specimen is not unusual.

The Museum's collection of Indian artifacts is relatively large and helps broaden our knowledge of Georgia's first citizens. Anthony Hood, Fleming's only assistant, has learned to reproduce these artifacts. He also paints the background for all the dioramas.

Fleming works in an office surrounded by an assortment of handsome stuffed owls. His tiny lab contains almost no space for one to move about. Specimens peer at the visitor from every shelf and table. A bear form is in the making. It is a form for one of three skins which will ultimately be used in a diorama showing the bears going after a honey tree. There are parts of specimens everywhere—a bird's wing is on the wall, an extra set of shark's jaws dangles from a lamp, single feathers of all varieties and color are stuck here and there. "Nothing is ever discarded," Fleming says. Feathers are utilized in making replicas of Indian artifacts, for example. He picked up an already stuffed woodcock specimen. The head had been shot away. Fleming is now waiting for a woodcock skin with a damaged body, but an intact head to complete the bird for display. It is difficult to imagine that the artistry involved in all the fish and wildlife specimens which one sees in the State Museum is created in such a tiny, cramped space.

The Georgia State Museum opens many doors for its visitors. It transports the city dweller into an unfamiliar world. It invites us to examine nature's minutia, to look with a fresher perspective at its many forms. From a visit to the Museum we can acquire a deepened appreciation of our environment and a new respect for nature's balance.

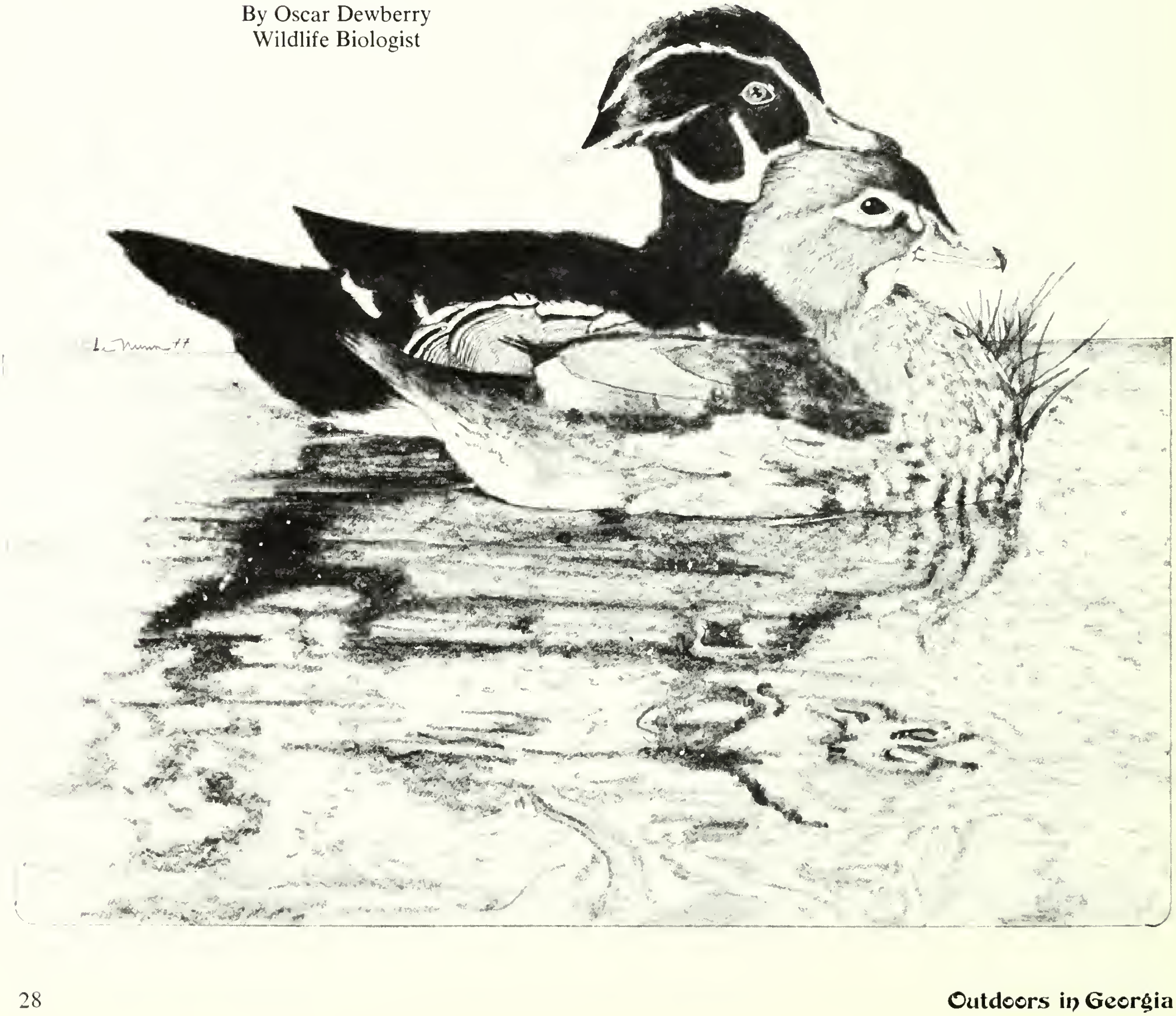
Outdoor Sketchbook

THE WOOD DUCK

By Oscar Dewberry
Wildlife Biologist

There is little doubt that the drake wood duck *(Aix sponsa)* is the most beautiful of all waterfowl. He is truly the Beau Brummell of ducks. However, beyond its beauty there are several outstanding qualities that make the "woodie" Georgia's most important waterfowl resource.

The wood duck is now distributed throughout the state, but this has not always been true. Prior to the Migratory Bird Treaty Act in 1918, the wood duck was near extinction. The hunting season on wood ducks was closed in Georgia in 1920 and remained closed until 1941. When the seasons opened, the bag limit was one and continued as such until 1960 when it was raised to two.



PRODUCTION REQUIREMENTS

The wood duck is the only duck which regularly nests in Georgia. The hooded merganser and some mallards nest in Georgia but neither are as widely distributed or numerous as the wood duck. Prime wood duck nesting habitat consists of hardwood swamps, ponds and stream edges. Natural lakes and farm ponds provide additional nesting habitat but of lower quality. Stream edges throughout the state provide good nesting sites in both live and dead timber. The rapid expansion of the beaver population in Georgia since the mid-fifties has been a tremendous stimulus to wood duck production. Not only do beaver ponds provide suitable nesting sites, they also provide varying water depths necessary for feeding, loafing and roosting sites. Wood ducks nest 3 to 50 feet above the ground in trees or in man-made structures. Nesting begins in January and continues into July and possibly August. After selecting a nest site, the hen begins laying one egg per day until a clutch of 12 to 14 eggs is completed. Nests found with more than this number of eggs are usually "dump nests" in which more than one hen lays in the same nest. Incubation takes from 24 to 28 days. Destroyed nests usually promote another nesting attempt by the hen. After hatching, the young ducklings remain in the nest for no more than two days, depending upon the time of day the hatch occurs. Usually only one night is spent in the nest. During the first hours of the young duckling's life, they become familiar with the mother hen's voice and the surroundings. This is known as "imprinting." Banding studies indicate wood ducks hatched in artificial nesting boxes usually return to similar boxes and nest in the same locality the following year. Since hen wood ducks have homing instincts, as do most waterfowl, the female returns to the general area where she was hatched. The adult drake does not possess homing traits and therefore follows its mate in her selection of a nest site.

Although water is an essential item for wood ducks, the nest does not have to be located above or near water. In May 1974, one brood was observed inside the city limits of Bainbridge, more than one-half mile from water. The landowner of the property where this brood was observed reported a brood has been raised in the same red oak tree in her yard for the past eight years.

Nests are usually at least 12 inches deep in a hollow tree or box. Therefore it is necessary for the young to be strong and able to get out of the nest. Some observers report that ducklings are "pushed out" from the nest; however this seems unlikely. Several researchers have substantiated the "climb out" exit from the nest in favor of the "pushed out" assumption. Regardless of the method of exit from the next entrance, their initiation to the outside world requires a fall from the nest. Injury from the fall is practically nonexistent, regardless of whether they hit the ground or water.

After the hen has satisfied herself that all her brood is out of the nest, she regroups her brood and begins the journey to a pond or stream. It is during this journey, especially if overland, that the greatest threat occurs to the young ducklings.

FOODS

Young ducklings, like most young birds, have a high protein requirement and for about four weeks feed heavily on insects or other invertebrates. The adult wood duck diet consists of about 90 per cent vegetable matter. In years of good mast crops, acorns make up a large proportion of the fall and winter diet. Corn is a staple food item in sections where corn is plentiful. Wood ducks will sometimes feed in harvested corn fields in early morning, late afternoon and the early evening. Smartweeds, grasses, weeds, wildpeas, pondweeds, cypress, blackgum, small hickory nuts and duckweeds are also consumed in varying amounts.

PREDATION

Probably the greatest amount of depredation occurs before hatching when the eggs are eaten by snakes, raccoons, squirrels and some birds. On land, ducklings are susceptible to a variety of predators. Naturally, the greater the distance from water, the more vulnerable the young birds are to predators such as cats, dogs, raccoons, skunks, snakes and many birds. Some losses also occur from vehicular traffic especially in urban areas and from people thinking ducklings would make nice pets. Upon reaching water they are subjected to turtles, fish and, in some sections, alligators. Various studies list overall depredation losses in wood ducks from 40 to 75 per cent before the ducklings attain flying age. A study conducted by the Georgia Game and Fish Division on the Piedmont National Wildlife Refuge indicated that 66 per cent of the young were lost before the young reached the flight stage.

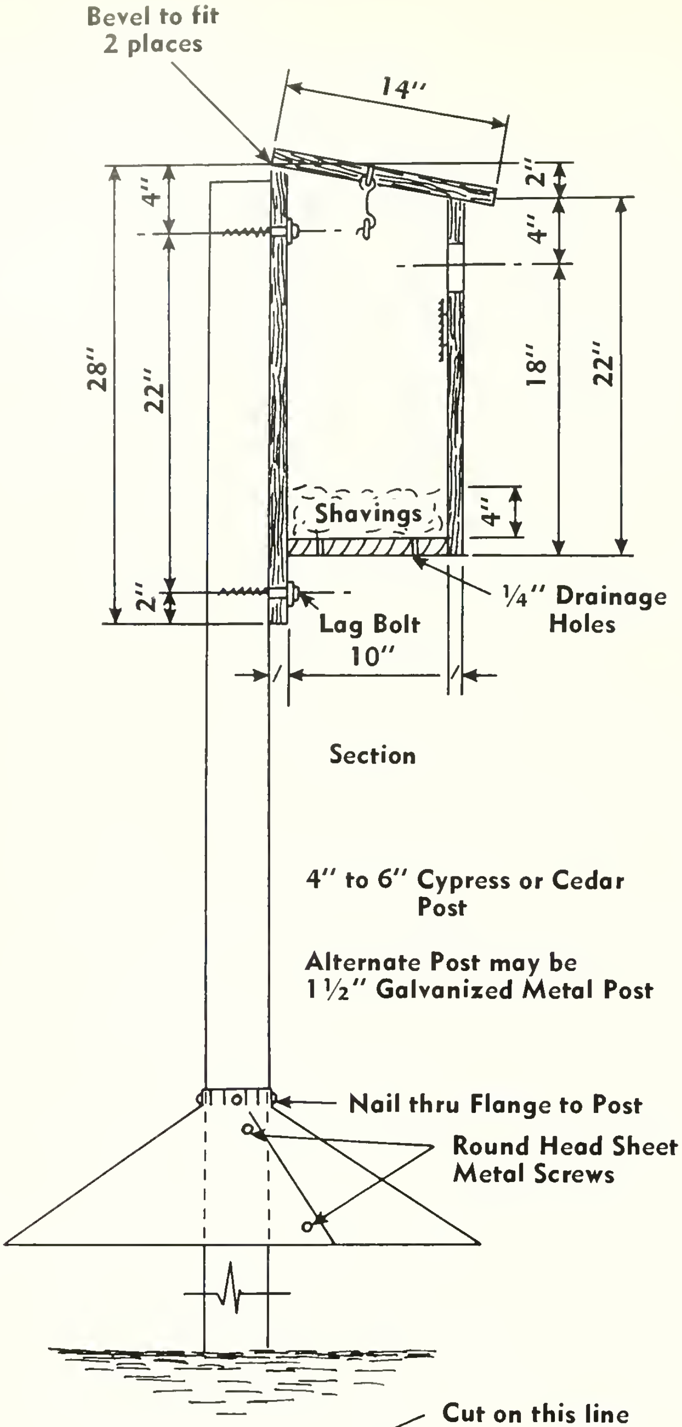
YOUNG ADULT LIFE

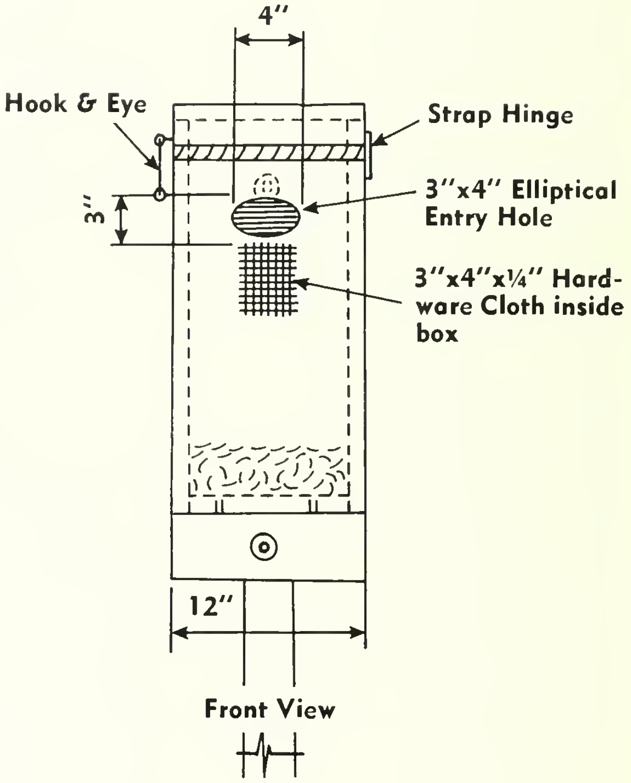
After about eight weeks, the young reach flying age, the birds disperse, and the family groups break up. They then begin to select locations where they congregate for feeding and loafing. The males begin using these locations first, followed by the young of the year and the hens. Here the adult birds' molt begins. The beautiful plumage of the drake as well as the less colorful hen feathers are replaced by duller colors. During the molt, the drake is unable to fly for about three weeks. It is during the flightless period that new winter plumage begins to develop. The molt is usually complete by late August and full winter plumage becomes visible by mid-September.

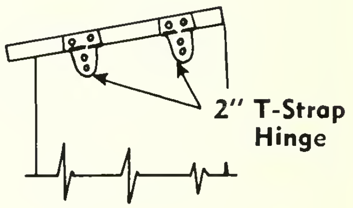
Wood ducks begin leaving in September after the molt is complete. In Georgia and other southern states wood ducks move in all directions, even northward before migration begins. Birds produced in the northern states begin moving south about October 15.

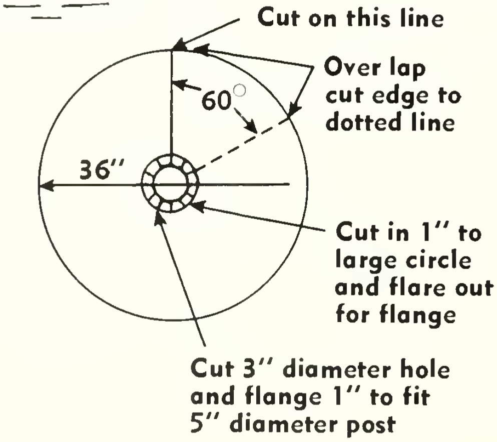
Banding studies have shown more wood ducks are banded in other states and recovered in Georgia than any other state. This population increase begins by mid-October and usually reaches its peak in late November. During the winter months there are probably more

WOOD DUCK NESTING BOX




4"
Hook & Eye
Strap Hinge
3"x4" Elliptical Entry Hole
3"x4"x¼" Hardware Cloth inside box
3"
12"
Front View




Cut on this line
Over lap cut edge to dotted line
60°
36"
Cut in 1" to large circle and flare out for flange
Cut 3" diameter hole and flange 1" to fit 5" diameter post

Material Required

1 Pc. 1"x12"x28" Cypress
1 Pc. 1"x12"x22" Cypress
1 Pc. 1"x12"x14" Cypress
2 Pc. 1"x10"x24" Cypress
1 Pc. 1"x10"x10" Cypress
1 Eye and Hook
2 2" T-Strap Hinges
1 Pc. 24 Ga. Galvanized Metal 36" Diameter
1 Pc. 3"x4"x¼" Hardware Cloth

than 500,000 wood ducks in the state.

ROOSTING

While wood ducks scatter to different areas to feed during the day, roosting occurs in concentrations. Birds arrive at the roost in singles, pairs or small flocks, and most appear to go to a central location. As the sun gets lower, birds become more numerous. Weather conditions influence these flights, and as day length decreases and the winter season progresses, these flocks become larger due to birds arriving from other states. These roosting concentrations will disperse more quickly than they assembled. It usually takes only a few minutes before all woodies leave a roost site in the morning.

Hunters who have been fortunate in locating roosting sites have found these locations provide a limited amount of hunting after the initial afternoon. However, since waterfowl hunting hours end at sundown, most roost shooting constitutes illegal hunting.

NESTING BOXES

Where there is a lack of hollow trees, nest boxes must be provided if wood ducks are to nest. Wood duck nesting boxes have met varying degrees of success from one locality to another. Utilization of nest boxes is highest where there is a scarcity of natural nesting sites. Wood duck nest boxes can be constructed from a variety of materials such as lumber, plywood, fiberglass, metal and cardboard. Specially manufactured cardboard materials now offer a new, cheaper alternative.

A plan for the basic wood box with a predator guard is shown at left. Where possible boxes should be placed in open water. All artificial wood duck nest structures should be equipped with a predator guard to repel raccoons and snakes. Since predator guards are often useless on trees, unless each tree is isolated from other trees, it is best to use poles for supporting boxes. Recent studies indicate that light emitted through a door or other opening acts as a repellent to some birds such as starlings and owls which compete for nesting cavities or boxes. These studies also indicate light is not a factor for wood duck nesting success in boxes.

After the boxes are put up they should be filled with approximately four to six inches of wood shavings. Highly residual insecticides should not be used as wasp repellents inside the boxes.

Boxes should be erected during the late summer or fall months in order for them to age before nesting searches begin in January. Renovation and maintenance checks should be made only after the nesting season has been completed. For maximum use of boxes, three checks per year should be made. The first should be in December or early January to clean out old shavings, egg shells, wasp nests and other unwanted materials. This is the best time to make any repairs and add new shavings. The second check should be in April to remove any unwanted materials and evaluate use by unwanted species of birds or animals. The third check should be made in May or June. Care should be taken in these checks because birds can be disturbed to the extent that nests are abandoned. If it is impractical to care for boxes on this schedule, at least an annual check should be made. Unless they are checked each year, their value in wood duck production is not worth their costs or efforts expended.

BEAVER PONDS

Many landowners overlook the value of beaver ponds for wood duck production and recreation. Often when a landowner realizes he has a beaver colony on his property, it is too late to save the flooded timber. At present there are no restrictions on beaver control in Georgia, and landowners can take whatever steps they wish to remove beaver from their property. For many, the beaver is a nuisance. However, they have created conditions over Georgia and much of the Southeast that have greatly increased the wood duck population.

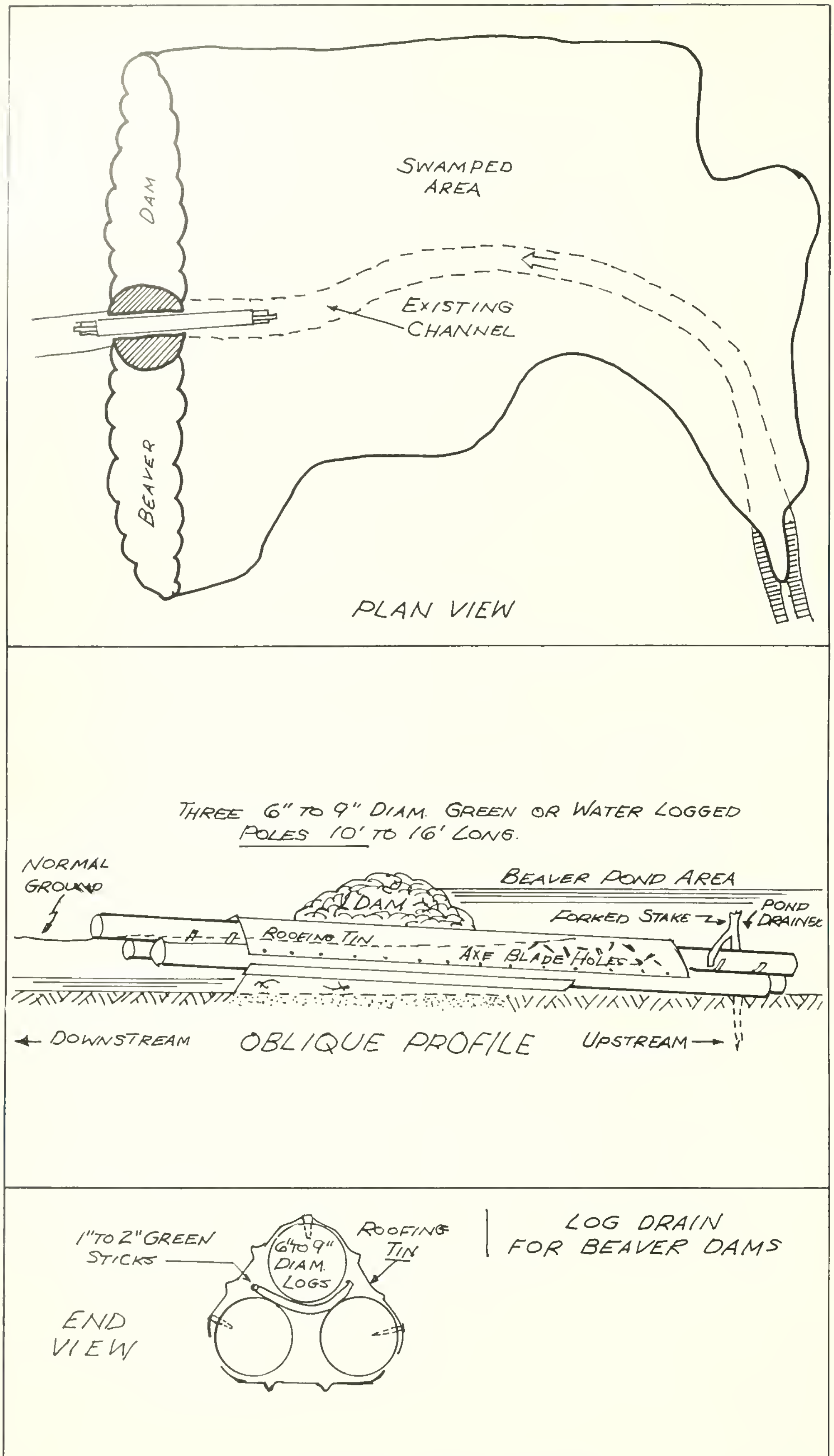
It is generally recognized that beaver are a liability to the landowner, however with proper water level control, a recreational and monetary value can often be derived from these ponds. Control of water level can be achieved by building a simple structure called a three-log drain (next page) in such a way that beaver cannot reflood the site.

The beaver dam should be cut near the stream channel to completely drain the pond. Cut three small poles or logs six to ten inches in diameter and 12 to 16 feet long. Fasten these logs together with two pieces of tin (5 V-drain or corrugated roofing is suitable) six to ten feet long in order to allow a piece on the floor of the stream bottom and one on the top. After the water flow is drained, place the logs so that the upstream ends are completely covered by water. The lower ends should protrude through the break in the dam. This structure, if properly installed, prohibits the beaver from repairing the break in the dam.

Pond bottoms have an abundance of silt, nutrients and seeds of desirable waterfowl food plants. If these ponds are to be managed naturally, the dam should be broken in early spring and the structure installed. They will then produce an abundance of smartweeds, wild millets or other grasses suitable as duck foods. If the landowner wishes to plant for waterfowl he should drain the pond in June and seed with Japanese millet. Planting should be made before the mud bottom dries. After the plants begin growing, the area can be flooded provided the plants are not submerged. The drainage structure should be checked about once a week to prevent complete reflooding before the millet matures. After it has matured, the drainage structure should be removed to allow the beavers to repair the dam so that reflooding can occur by late fall. Usually, after the initial planting, Japanese millet will reseed and it is not necessary to replant the following year. No substitute should be made for Japanese millet.

GREEN TREE PONDS OR RESERVOIRS

Hardwood timber produces one of the wood duck's main foods. Flooding of hardwood bottoms, known as a green tree reservoir, can produce an excellent duck pond.



THREE LOG DRAIN

However flooding for extended periods during the growing season will kill most types of hardwoods. For this reason, green tree reservoirs are flooded only when the trees are dormant. Care should be used in selecting a potential site to assure abundance of hardwoods, preferably acorn-producing oaks. A soil boring should also be made and Soil Conservation Service maps consulted. Most Georgia counties have been mapped and records are available at the county work unit office. All potential pond sites must have a soil profile capable of holding water. The area should be as large as practical to flood, preferably in excess of five acres. Construction should not be made where a major portion of the pond's water depth exceeds 18 inches. (Wood ducks are classed as puddle ducks or ducks that feed in shallow water.) Finally, a souce of water must be available for flooding in late October. The key to all unsuccessful waterfowl management programs is water level control. Water must be available when needed and there must be a way to remove it when necessary.

In ponds that are heavily hunted, drainage should take place as soon as possible after hunting season to reduce the probability of birds picking up lead shot. During hunting season the wood duck is less likely to pick up spent shot due to its nervous nature. This combined with hunting activities usually make their foraging trips shorter. After the hunting season ends, birds frequently feed, loaf and roost in flooded timber thus increasing the likelihood of ingesting spent shot.

TECHNICAL ASSISTANCE TO LANDOWNERS

Biologists with DNR's Game and Fish Division are available for consultation with landowners who are interested in providing or improving habitat for wood ducks and other wildlife. The county offices of the Soil Conservation Service and Work Area Technicians can provide expertise and information for landowners who plan to build a pond. Engineering assistance is also available from the Soil Conservation Service.

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